ORDER NO. MTNC010978S1
B2

Service Manual

Supplement

Color Video Projection System
and
ATV Monitor

Supplement Manual

Panasonic

Models	Chassis	Models	Chassis
PT-51G54A	AP815	PT-56WXF95A	AEP818
PT-51G54CA	AP815	PT-61G54A	BP815
PT-51SX60A	AP816	PT-61G54CA	BP815
PT-51SX60CA	AP816	PT-61SX60A	BP816
PT-51DX80A	AP817	PT-61SX60CA	BP816
PT-51DX80CA	JP816	PT-61SX30B	DP816
PT-51D30B	JP816	PT-61SX30CB	DP816
PT-51D30CB	JP816	PT-61SX80A	BP817
PT-51SX30B	HP816	PT-61SX80CA	BP817
PT-51SX30CB	HP816	PT-61D30B	EP816
PT-56WXF90W	AEDP812	PT-61D30CB	EP816

“**WARNING!** This Service Manual is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. **Products powered by electricity should be serviced or repaired only by experienced professional technicians.** Any attempt to service or repair the product or products dealt with in this Service Manual by anyone else could result in serious injury or death.”

The service technician is required to read and follow the “**Safety Precautions**” and “**Important Safety Notice**” in the Main **Manual.**

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REPLACEMENT PARTS LIST
(For Protective Screen)

OTHERS					
MODELS	MAIN OR SIMPLIFIED SERVICE MANUAL #	REF No.	BEFORE CHANGE	AFTER CHANGE	DESCRIPTION
PT- 51G54A	(Main) MTC9903012C1	M046	*TKG2AD00011	TKG2AD00041	PROTECTIVE SCREEN
PT- 51G54CA	↓	↓	↓	↓	↓
PT- 51SX60A	(Main) MTC9904019C1	M024	TKG2AD00011	↓	↓
PT- 51SX60CA	↓	↓	↓	↓	↓
PT- 51DX80A	(Main) MTC9908031C1	M020	↓	↓	↓
PT- 51DX80CA	↓	↓	↓	↓	↓
PT- 51D30B	(Simp.) MTNC000234A1	M062	*TKG2AD00011	↓	↓
PT- 51D30CB	↓	↓	↓	↓	↓
PT- 51SX30B	↓	↓	↓	↓	↓
PT- 51SX30CB	↓	↓	↓	↓	↓
PT- 56WXF90W	(Main) MTC9806773C1	M037	*TKG2A40056	TKG2AD00061	↓
PT- 56WXF95A	(Main) MTC9906026C1	M016	TKG2A40056	↓	↓
PT- 61G54A	(Main) MTC9903012C1	M047	*TKG2AD00012	TKG2AD00051	↓
PT- 61G54CA	↓	↓	↓	↓	↓
PT- 61SX60A	(Main) MTC9904019C1	M025	TKG2AD00012	↓	↓
PT- 61SX60CA	↓	↓	↓	↓	↓
PT- 61SX30B	(Simp.) MTNC000234A1	M063	*TKG2AD00012	↓	↓
PT- 61SX30CB	↓	↓	↓	↓	↓
PT- 61SX80A	(Main) MTC9908032C1	M021	TKG2AD00012	↓	↓
PT- 61SX80CA	↓	↓	↓	↓	↓
PT-61D30B	(Main) MTNC000211C1	M040	*TKG2AD00012	↓	↓
PT-61D30CB	↓	↓	↓	↓	↓

NOTE:

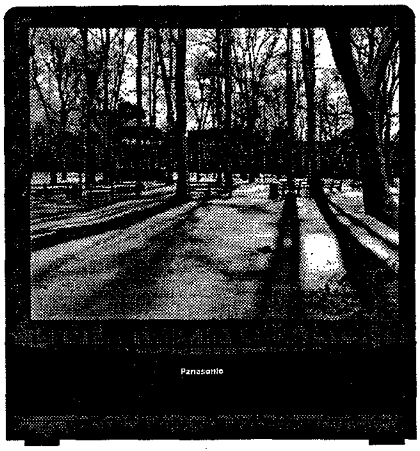
*Part number missing from Replacements Part List in manual.

ORDER NO. MTC9705703C1

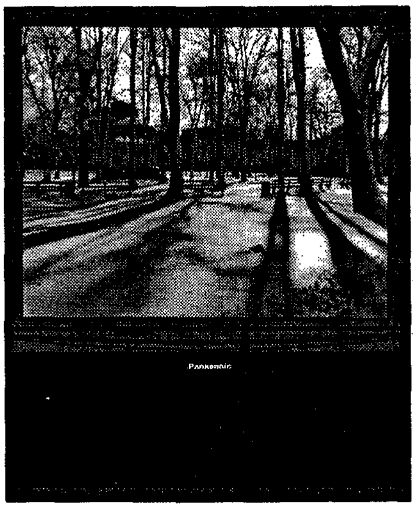
Service Manual

Color Video Projection System

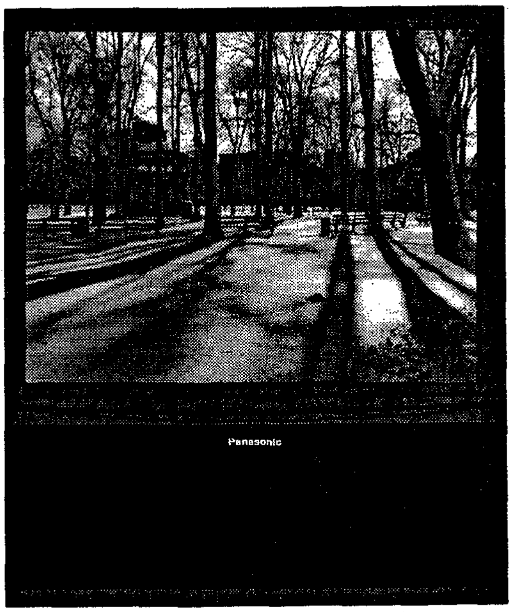
Models	Chassis	Models	Chassis	Models	Chassis
PT-51G50U	AEDP810	PT-51G52V	ALEDP810	PT–61G52V	ALEDP810
PT-51G50CU	AEDP810	PT-51G52CV	ALEDP810	PT–61G52CV	ALEDP810
PT-51G50LU	AEDP810	PT-51G52LV	ALEDP810	PT–61G52VV	ALEDP810
PT-51G50VU	AEDP810	PT-51G52VV	ALEDP810	PT–61G52LV	ALEDP810
PT-51G50PU	AEDP810	PT-51G52PV	ALEDP810		
PT-51G50TU	AEDP810	PT-51G52TV	ALEDP810		
		PT-51G52XV	ALEDP810		



PT–51G50



PT–51G52



PT–61G52

Note: Refer to Technical Guide (P2) for functional descriptions and block diagrams. (MTC9607656S1)

Specifications are subject to change without notice or obligation. Dimensions and weights are approximate.

The service technician is required to read and follow the "Safety Precautions" and "Important Safety Notice" in this Service Manual.

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Important Safety Notice

There are special components used in this television Receiver that are important for safety. These parts are identified on the schematic diagram by the symbol ⚠ and printed in **BOLD TYPE** on the replacement parts list. It is essential that these critical parts should be replaced with manufacturer's specified parts to prevent X–RAYS radiation, electrical shock, fire or other hazards. Do not modify the original design without manufacturer's permission.

Safety Precautions

General Guidelines

Part of the power supply circuit (P–Board) is above earth ground and cannot be polarized. An ISOLATION TRANSFORMER should always be used when servicing the Receiver. Use a transformer of adequate power rating to protect the technician from accidents resulting in personal injury from electrical shocks. It will also protect the Receiver from being damaged by accidentally shorting the circuitry during servicing.

When servicing, observe the original lead dress, especially in the high voltage circuit. In case of a short circuit, replace every part which has overheated.

Always REPLACE PROTECTIVE DEVICES, such as fishpaper, isolation resistors and capacitors, and shields after working on the Receiver. Use only manufacturers recommended rating for fuses, circuit breakers, etc.

Potentials as high as 32 kV are present when the Receiver is operating. Operation of the Receiver without the rear cover introduces danger of a shock hazard from the Receiver's power supply. Servicing should not be attempted by anyone who is not thoroughly familiar with the precautions necessary when working on high–voltage equipment.

Extreme care should be used when HANDLING THE PICTURE TUBE. Rough handling may cause it to implode due to atmospheric pressure (14.7 lbs per sq. in.). Do not nick or scratch the glass or subject it to any undue pressure during removal or installation. When handling, use safety goggles and heavy gloves. Discharge picture tube by shorting the anode to chassis ground (not to cabinet or other mounting parts). When discharging, connect from ground to anode with an insulated 16 AWG wire or heavier.

X–Rays Precautions

The front area (between the projection tube and the lens) is enclosed by a metal box to ensure positive safety during normal and abnormal conditions when checking and repairing. To fully ensure safety, the following precautions must be observed.

1. Do not remove the lens or metal box.
2. Make sure to turn the power OFF when the lens is removed or when checking the cleanliness of the lens.
3. Do not remove the lens or metal box to check the projection tube for operation by watching it directly. Use a mirror or paper to view the image.

BEFORE RETURNING A SERVICED RECEIVER TO THE OWNER, the service technician must thoroughly test the unit to be certain that it is completely safe to operate without danger of electrical shock. DO NOT USE A LINE ISOLATION TRANSFORMER WHEN MAKING THIS TEST.

Leakage Current Cold Check

Unplug the AC cord and connect a jumper between the two plug prongs. Press the POWER switch ON. Measure the resistance between the jumpered AC plug and each exposed metallic part such as screw heads, antenna terminals, control shafts, etc. If the exposed metallic part has a return path to the chassis, the resistance is between 240 kΩ and 5.2 MΩ. When the exposed metal does not have a return path to the chassis, the reading must be infinite. Remove the jumper after the test.

Leakage Current Hot Check (See Figure 2a)

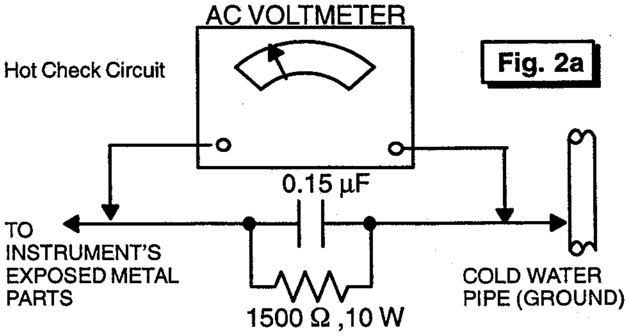
Plug the AC cord directly into the AC outlet. Do not use an isolation transformer during this check.

Connect a 1.5 kΩ 10 watt resistor in parallel with a 0.15 µF capacitor between each exposed metallic part and ground. Use an earth ground, for example a water pipe.

Using an AC voltmeter with 1000 ohm/volt or higher sensitivity, measure the potential across the resistor.

Move the resistor connection to each exposed metallic part (screw heads, antenna terminal, control shifts, etc.) and measure the voltage present.

Check that any potential does not exceed 0.75 V RMS. A leakage current tester (Simpson Model 229, Sencore Model PR57 or equivalent) may be used in the above hot check, in which case any current measured must not exceed 0.5 mA. In case any measurement is out of the specified limits, there is a possibility of a shock hazard and the Receiver must be repaired and rechecked before it is returned to the customer.



X–Rays Radiation⚠

WARNING: The potential source of X–Rays radiation in Color Video Projection Systems is the High Voltage section and the projection tubes.

NOTE: It is important to use an accurate, calibrated high voltage meter.

Select Picture icon and use Video Adjustment Menu to set BRIGHTNESS and PICTURE to Minimum.

Measure the High Voltage between anode and ground. The high voltage meter should indicate 31.5 ± 1.0 kV). If the measurement is out of tolerance, immediate service and correction is required to insure safe operation and to prevent the possibility of premature component failure.

Important Safety Tests

These tests must be performed after changing parts on the B-Board or P-Board. The High Voltage Adjustment EHT Protector Control VR (R1583) on the Q-Board is factory preset and sealed. In order to reset, new parts need to be installed and then followed by adjustments.

Replacement Procedures

1. Unplug the Receiver.
2. Remove VR (R1583) (EHT Protector) on Q-Board.
3. Before installing new controls use a piece of transparent adhesive tape and place over terminal holes on board. Position new controls over terminal holes and sent through tape, then solder terminals.

Measuring H.V. ⚠

The anode caps are cemented to the CRTs. To gain access to the high voltage for measurement, remove the red CRT's anode lead from the Flyback Transformer (FBT) distributor. Grasp the anode lead protective cap at its bottom and squeeze it against the locking cap body inside. Rotate 1/4 turn counter clockwise and pull the anode lead sleeve out of the FBT distributor. Connect a high voltage lead (+) from your H.V. meter to the FBT distributor, and the common (–) to ⏚. (Fig. 3a and 4a)

NOTE: Reinsert the anode lead into the FBT distributor until it is tightly and fully seated. Turn the locking cap clockwise to lock in place.

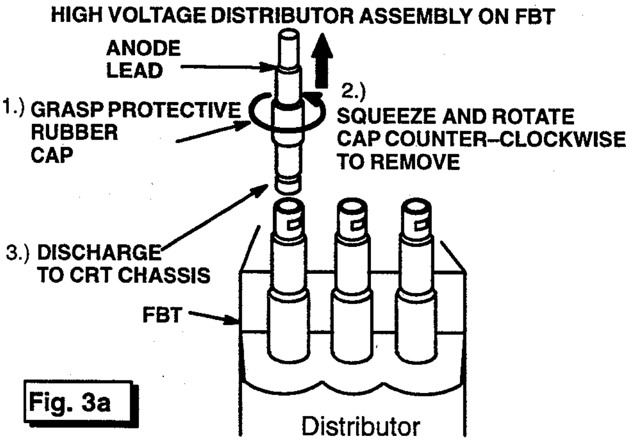

HIGH VOLTAGE DISTRIBUTOR ASSEMBLY ON FBT
ANODE LEAD
1.) GRASP PROTECTIVE RUBBER CAP
2.) SQUEEZE AND ROTATE CAP COUNTER–CLOCKWISE TO REMOVE
3.) DISCHARGE TO CRT CHASSIS
FBT
Distributor

Fig. 3a

Horizontal Voltage (EHT) Shutdown Tests and EHT Adjustment

With the cabinet back removed, supply two (2) nominal 120 V AC to the Receiver.

Over Voltage Test Preparation:

1. Turn Receiver "OFF".
2. Connect signal generator to antenna.
3. Connect DVM (+) TPQ4 (–) TPQ5 on Q-Board.
4. Connect H.V. meter with high voltage lead to high voltage distributor on FBT. (see measuring H.V. above and Fig. 24a)
5. Connect high voltage adjustment tool (8 ~ 15 V DC variable power supply) to (+) TPB10 (–) TPBGND B-Board.

Procedures

1. Turn Receiver "ON".
2. Enter the Service Mode and press the RECALL button to use white screen.
3. Adjust high voltage for 33.0 kV ±0.5 kV and 18.2 ±0.5V for the value of DVM, by slowly increasing DC voltage of high voltage adjustment tool, combined use with bright if necessary.
4. Turn the EHT Protector control VR (R1583) clockwise very slowly and stop when shutdown circuit operates.
5. Decrease the voltage of the high-voltage adjustment tool.
6. Turn Receiver "OFF" by unplugging the AC line cord. Insert cord again.
7. Turn Receiver "ON" by pressing the power switch.
8. Check that shutdown high voltage is 33.0 ±0.5 kV by slowly increasing DC voltage of high voltage adjustment tool. At this time also check that DVM is 18.2 ±0.5V just before shutdown.
9. Repeat steps 5 through 7.
10. If value is not correct. Repeat steps 3 through 8.
11. Turn Receiver "OFF".
12. Fill caps with silicon (part number 08C11006) and place over control.

    Note: Allow approximately 1 hour for sealant to harden before turning Receiver ON.

Fig. 3b

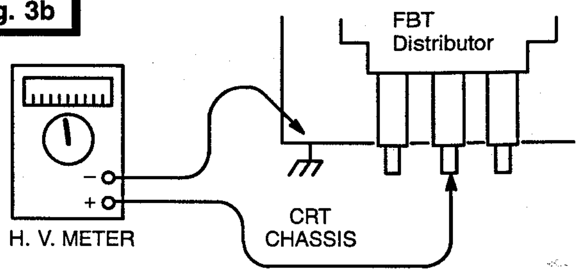
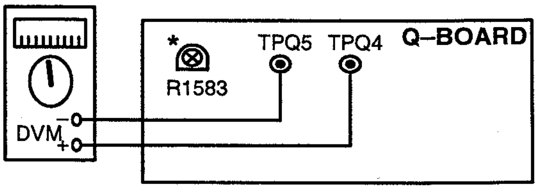


Fig. 3c



Front side

*Factory preset and sealed.

CRT Protect Circuit

This circuit blanks the CRTs in the event that there is a loss of vertical sweep. The circuit is not adjustable; however, the circuit should be checked each time service is performed.

To check circuit:

1. Turn Receiver ON and select an active channel.
2. Adjust BRIGHT and PICTURE controls for a visible picture.
3. On Q-Board connect a short-jumper from TPB6 to TPQ2. The CRTs should blank. If this does not occur, repair must be performed before returning Receiver to customer.

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Feature Table

FEATURE \ MODEL	PT-51G50/U PT-51G52/V PT-51G52/CV PT-61G52/V	PT-51G50/PU PT-51G52/PV PT-61G52/PV	PT-51G50/LU PT-51G52/LV PT-61G52/LV	PT-51G50/TU PT-51G52/TV	PT-51G50/XU PT-51G52/XV PT-61G52/XV
Chassis	P2	P2	P2	P2	P2
# of channels / Phase	181 / PH21P	181 / PH21P	181 / PH21P	181 / PH21P	181 / PH21P
Menu language	ENG /SPAN/ FR	ENG /SPAN/ FR	ENG /SPAN/ FR	ENG /SPAN/ FR	ENG /SPAN/ FR
Closed Caption	X	X	X	X	X
# of tuners	2	2	2	2	2
75 Ω input	X	X	X	X	X
Remote Model #	TNQ2AE003–1	TNQ2AE003–1	TNQ2AE003–1	TNQ2AE003–1	TNQ2AE003–1
White face tube	W/PROT SCRN	W/PROT SCRN	W/PROT SCRN	W/PROT SCRN	W/PROT SCRN
YNR	NR	NR	NR	NR	NR
Comb filter	3D Y/C	3D Y/C	3D Y/C	3D Y/C	3D Y/C
Video or Audio norm Switch (X=both)	X	X	X	X	X
MTS/SAP/DBX	X	X	X	X	X
Built–in audio power	15W/CH (10%)	15W/CH (10%)	15W/CH (10%)	15W/CH (10%)	15W/CH (10%)
# of speakers	2	2	2	2	2
Bass/Bl/Tre Control	X	X	X	X	X
AI sound (delux)	X	X	X	X	X
Surround	DOBLY PRO LOGIC	DOBLY PRO LOGIC	DOBLY PRO LOGIC	DOBLY PRO LOGIC	DOBLY PRO LOGIC
A/V in (rear/front)	3/0	3/0	3/0	3/0	3/0
Fixed audio out	X	X	X	X	X
Variable audio out	X	X	X	X	X
S–VHS Input (rear/front)	2/0	2/0	2/0	2/0	2/0
Dimensions mm (WxHxD) in	43.23 x 52.34 x 24.99 1098 x 1329 x 633	43.23 x 52.34 x 24.99 1098 x 1329 x 633	43.23 x 52.34 x 24.99 1098 x 1329 x 633	43.23 x 52.34 x 24.99 1098 x 1329 x 633	43.23 x 52.34 x 24.99 1098 x 1329 x 633
Weight (kg / lb)	74.91 / 165.0	74.91 / 165.0	74.91 / 165.0	74.91 / 165.0	74.91 / 165.0
Power source (V / Hz)	120 / 60	120 / 60	120/60(PT–61G52/LV local adjust)	110 / 60	127 / 60
Power consumption, Max (A)	3.1	3.1	3.1	3.1	3.1
Anode voltage	31.5kV ± 1.0KV	31.5kV ± 1.0KV	31.5kV ± 1.0KV	31.5kV ± 1.0KV	31.5kV ± 1.0KV
Video input jack	$1V_{p-p}$ 75Ω, phono jack	$1V_{p-p}$ 75Ω, phono jack	$1V_{p-p}$ 75Ω, phono jack	$1V_{p-p}$ 75Ω, phono jack	$1V_{p-p}$ 75Ω, phono jack
Audio input jack	500mV RMS, 47kΩ	500mV RMS, 47kΩ	500mV RMS, 47kΩ	500mV RMS, 47kΩ	500mV RMS, 47kΩ
To audio out jack	0~2.0V RMS, 4.7kΩ	0~2.0V RMS, 4.7kΩ	0~2.0V RMS, 4.7kΩ	0~2.0V RMS, 4.7kΩ	0~2.0V RMS, 4.7kΩ
"A"–Board TNPH0006, MPU, audio & convergence out	AA1	AA1	AA1	AA1	AA1
"AG"–Board TNPA1008 Video, chroma, jungle	AB1	AB1	AB1	AB1	AB1
"B"–Board TNPH0007 high voltage, H defl., SW power, over current protection	AA	AA	AA	AA	AA

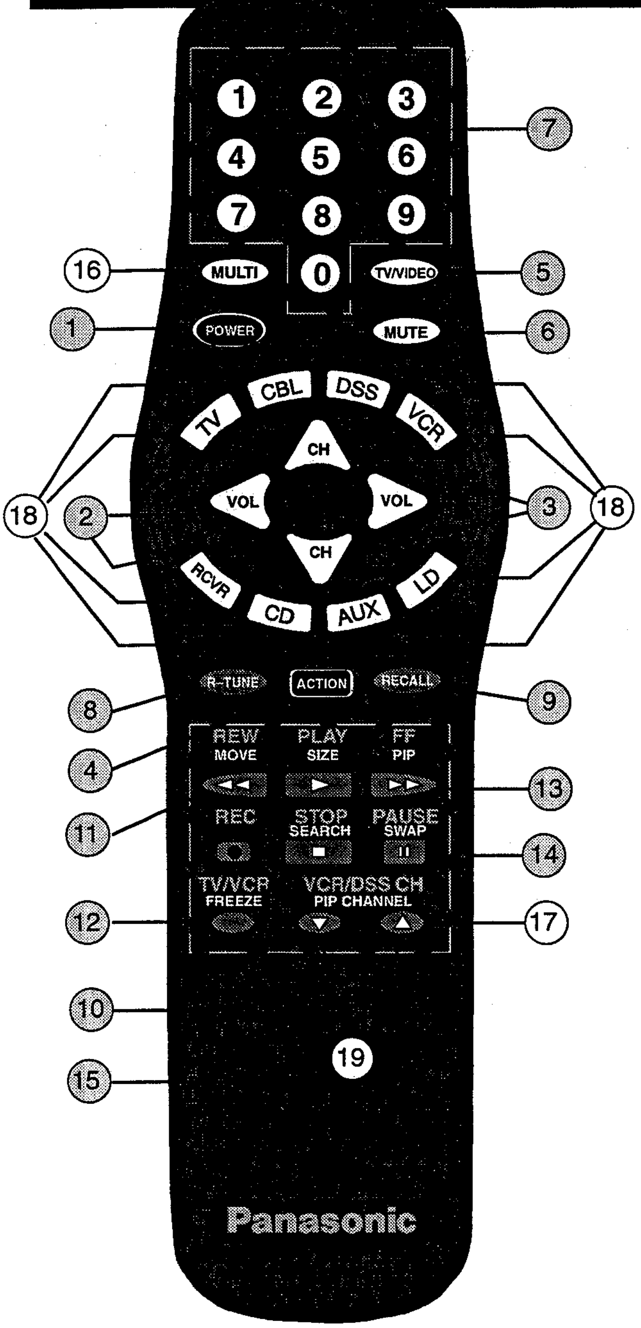
Feature Table (Continued)

FEATURE \ MODEL	PT–51G50/U PT–51G52/V PT–51G52/CV PT–61G52/V	PT–51G50/PU PT–51G52/PV PT–61G52/PV	PT–51G50/LU PT–51G52/LV PT–61G52/LV	PT–51G50/TU PT–51G52/TV	PT–51G50/XU PT–51G52/XV PT–61G52/XV
"C"–Board TNPA0042 digital convergence	AA	AA	AA	AA	AA
"D1"–Board TNPA0222 dolby pro logic	AA	AA	AA	AA	AA
"D2"–Board TNPA0043 sub power supply	AA	AA	AA	AA	AA
"K"–Board TNPA10029 front panel control	AA	AA	AA	AA	AA
"G"–Board TNPA0030 rear AV panel	AA PT–51G50 ONLY	AA PT–51G50 ONLY	AA PT–51G50 ONLY	AA PT–51G50 ONLY	AA PT–51G50 ONLY
"LR"–Board TNPA0036 CRT red drive	AA	AA	AA	AA	AA
"LG"–Board TNPA0037 CRT grn drive, VM drive	AA	AA	AA	AA	AA
"LB"–Board TNPA0038 blue drive	AA	AA	AA	AA	AA
"M"–Board TNPA0026 tuner, 2nd VIF, audio control, AV sw	AA	AA	AA	AA	AA
"N"–Board TNPA0183 1st VIF, AFC, det, MTS	AA	AA	AA	AA	AA
"P"–Board TNPA0041 AC in, DM drive, H drive, EHT correct	AA	AA	AA	AA	AA
"Q"–Board TNPA0040 overdefl. blanking, EHT prot.	AA	AA	AA	AA	AA
"R"–Board TNPA0031 remote control sensor	AA	AA	AA	AA	AA
"W"–Board TNPA0027 white balance switching	AA	AA	AA	AA	AA
"X"–Board TNPA0039 AV terminal	AA	AA	AA	AA	AA
"Y"–Board TNP111794 PIP controller, processor	CZ	CZ	CZ	CZ	CZ
"YC"–Board TNPA0365 3D, YC circuit	AA	AA	AA	AA	AA

Table 1. **Receiver Features**

Specifications are subject to change without notice or obligation.
Dimensions and weights are approximate.

Location of Controls for the Illuminated Home Theater Remote



Note: In order to maximize the life of the batteries, the lights can be turned OFF and ON by pressing R-TUNE and RECALL at the same time.

Helpful Hints:

If the selected component does not respond to the remote control, ensure that the proper mode is selected. **First**, press the **Mode Selection Button** that corresponds to that component. For example, after first pressing the TV Mode Button, the remote will remain in the TV mode for any following commands. If a different mode button is pressed while operating the television, the TV mode button must be pressed again to reset the TV mode condition.

Basic Remote Control Functions

The following is a basic overview of the remote control unit **for television operation. Ensure the TV mode is selected by initially pressing** TV.

① **Power Button** – Press to turn the TV ON or OFF.

② **Volume Buttons** – Press to adjust TV sound level. Use with Channel buttons to navigate in menus.

③ **Channel Buttons** – Press to select channels. Use with Volume buttons to navigate in menus.

④ **Action Button** – Press to display Main Menu and access or exit On-Screen feature and Adjustment Menus.

⑤ **TV/Video Button** – Press to select TV or one of four (4) Video Inputs, for the Main Picture or the PIP frame (when the PIP frame is displayed).

⑥ **Mute Button** – Press to mute sound. A second press returns sound.

⑦ **Numeric Keypad (0 through 9 Buttons)** – Press desired channel number to access any channel.

⑧ **R-Tune (Rapid Tune) Button** – Switches between two (2) channels.

⑨ **Recall Button** – Press to display Time, status of Sleep Timer, Channel, Video Mode, Channel Caption (Station Identifier), and Audio Mode.

⑩ **Size Button** – Press to select size of PIP frame (when the PIP frame is displayed).

⑪ **Move Button** – Press to position PIP frame to any corner of the Main Picture (when PIP frame is displayed).

⑫ **Freeze Button** – Press to stop action in the Main Picture or PIP frame (when the PIP frame is displayed).

⑬ **PIP (Picture In Picture) Button** – Press to display the PIP frame, press again to remove PIP frame.

⑭ **Swap Button** – Press to interchange PIP frame with Main Picture (when the PIP frame is displayed).

⑮ **Search Button** – This button is used to select PIP Search to automatically scan channels within the PIP Frame.

⑯ **Multi Button** – Programmable to operate up to six (6) Remote Function buttons simultaneously.

⑰ **VCR Function Buttons** – Programmable to operate many brands of VCR's.

⑱ **Mode Selection Buttons** – Selects the operation mode for the remote control.

⑲ **VCR/DSS Channel Buttons** – These buttons are used to select VCR or DSS Up/Down channels.

Location of Controls (Receiver)

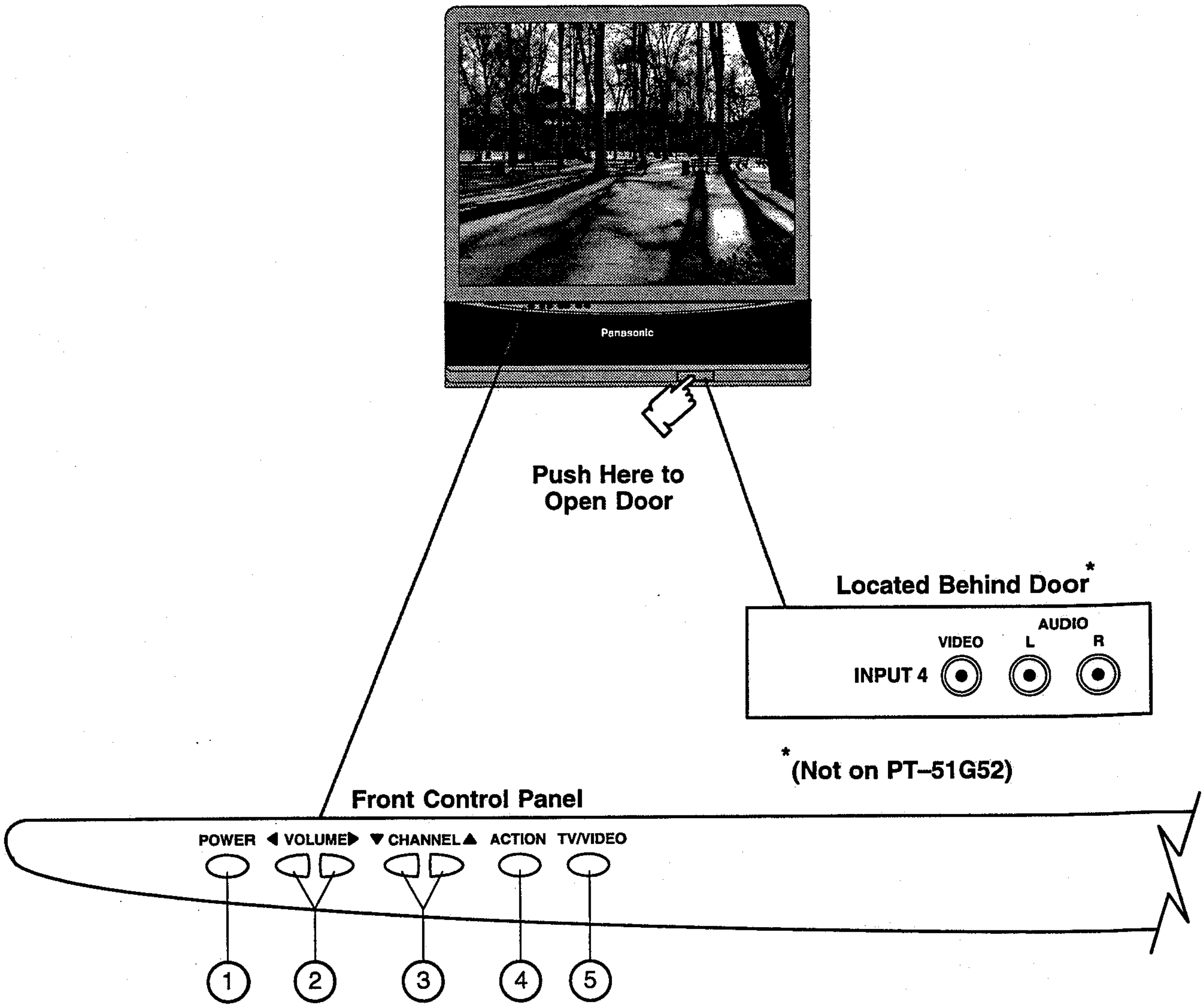

Panasonic
Push Here to Open Door
Located Behind Door*
AUDIO
VIDEO
L
R
INPUT 4
*(Not on PT–51G52)
Front Control Panel
POWER
◀ VOLUME ▶
▼ CHANNEL ▲
ACTION
TV/VIDEO
1
2
3
4
5

Fig. 8a

Quick Reference Control Operation

① **Power Button** – Press to turn ON or OFF.

② **Volume Buttons** – Press to adjust Sound Level. Press to adjust Audio Menus, Video Menus, and select operating features when menus are displayed.

③ **Channel Buttons** – Press to select programmed channels. Press to highlight desired features when menus are displayed.

④ **Action Button** – Press to display Main Menu and access or exit On-Screen feature and Adjustment Menus.

⑤ **TV/Video Button** – Press to select TV, or one of four Video Inputs for the Main Picture, or the PIP frame (when the PIP frame is displayed).

Main Menu (Trilingual Animated Icons)

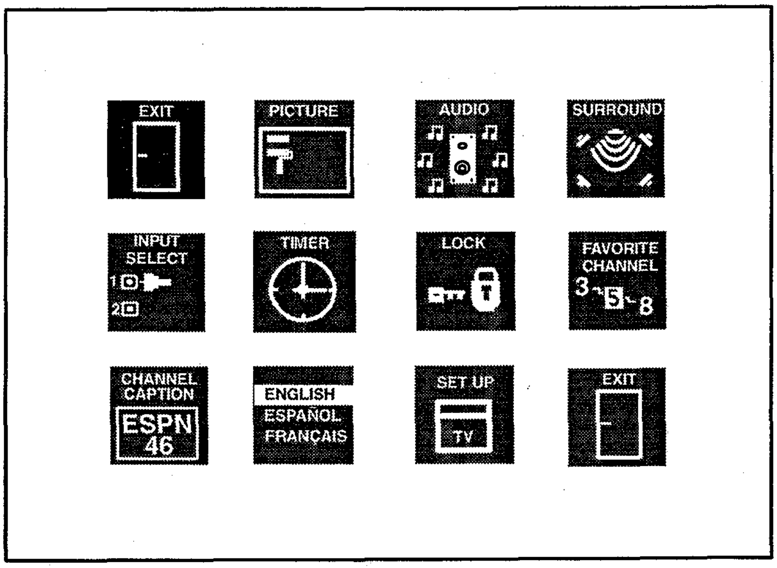

EXIT
PICTURE
AUDIO
SURROUND
INPUT SELECT
1
2
TIMER
LOCK
FAVORITE CHANNEL
3 5 8
CHANNEL CAPTION
ESPN 46
ENGLISH
ESPAÑOL
FRANÇAIS
SET UP
TV
EXIT

Fig. 9a **NOTE:** Only the selected Icon will be animated.

Displays and Exits Menus

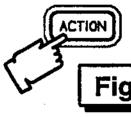


Fig. 9b

Located On Remote Control

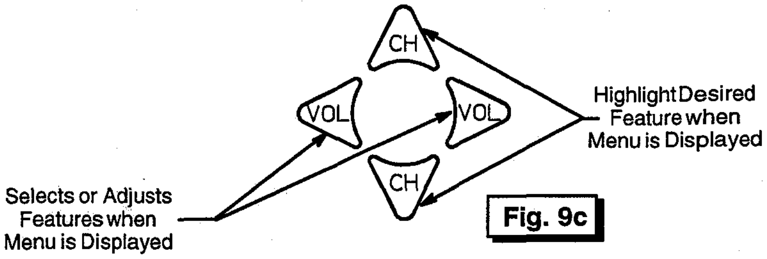
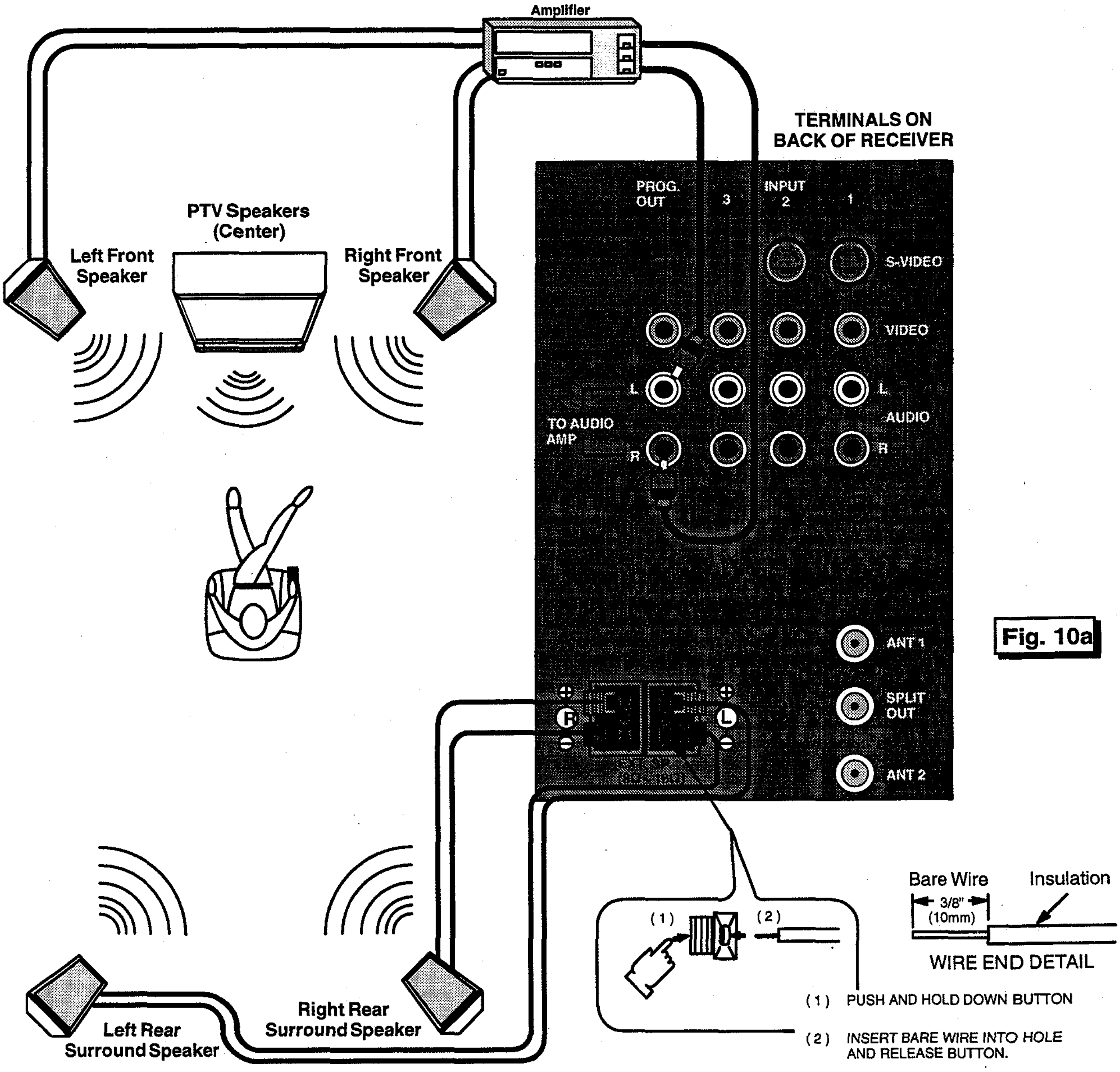

CH
VOL
VOL
CH
Highlight Desired Feature when Menu is Displayed
Selects or Adjusts Features when Menu is Displayed

Fig. 9c

1. Press the ACTION button to display the Main Menu with Icons.
2. Press the CH UP/DOWN and the VOL LEFT/RIGHT buttons to select the desired Icon when the Main Menu is displayed (selected Icon will be indicated in Red).
3. Press the VOL buttons for left and right movement and the CH buttons for up or down movement.
4. To exit the Main Menu first select the EXIT Icon, then press the ACTION button.

Surround

Dolby Pro-Logic Surround Connection

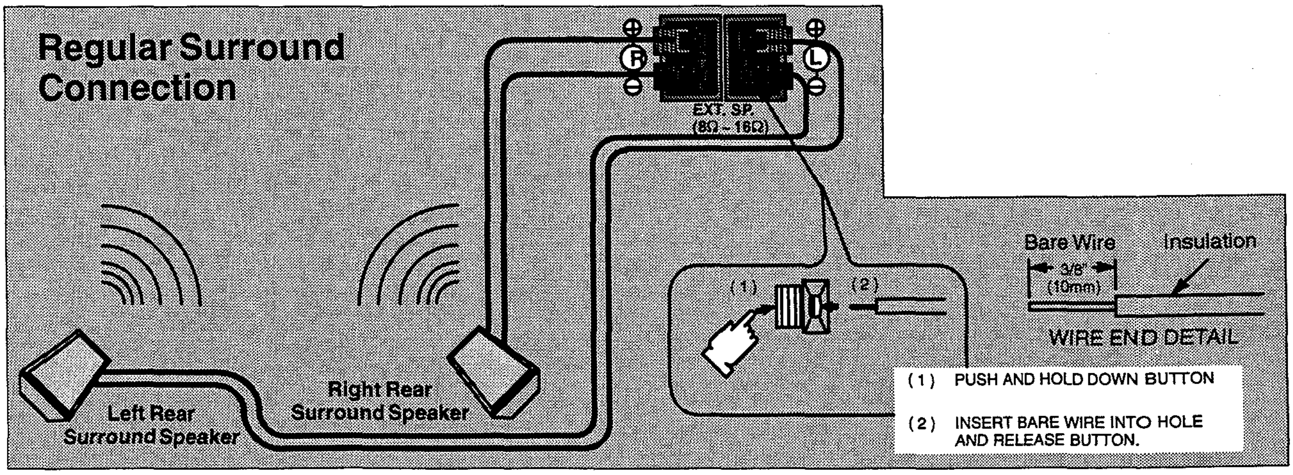

Amplifier
TERMINALS ON BACK OF RECEIVER
PROG. OUT
3
INPUT 2
1
S-VIDEO
VIDEO
L
AUDIO
R
TO AUDIO AMP
ANT 1
SPLIT OUT
ANT 2
EXT. SP. (8Ω - 16Ω)
PTV Speakers (Center)
Left Front Speaker
Right Front Speaker
Left Rear Surround Speaker
Right Rear Surround Speaker
(1)
(2)
Bare Wire
Insulation
3/8" (10mm)
WIRE END DETAIL

(1) PUSH AND HOLD DOWN BUTTON

(2) INSERT BARE WIRE INTO HOLE AND RELEASE BUTTON.

Fig. 10a

Regular Surround Connection


EXT. SP. (8Ω - 16Ω)
Left Rear Surround Speaker
Right Rear Surround Speaker
(1)
(2)
Bare Wire
Insulation
3/8" (10mm)
WIRE END DETAIL

(1) PUSH AND HOLD DOWN BUTTON

(2) INSERT BARE WIRE INTO HOLE AND RELEASE BUTTON.

Programming the Home Theater Remote

The remote control can be set to control other manufacturers components, by utilizing the **MODE SELECTION BUTTONS** for **CABLE, DSS, VCR, RCVR** (a **Receiver** or **Amplifier**), **CD, LD,** and **AUX** (for **Cassette Players, Second VCR** or a **DVD.**)

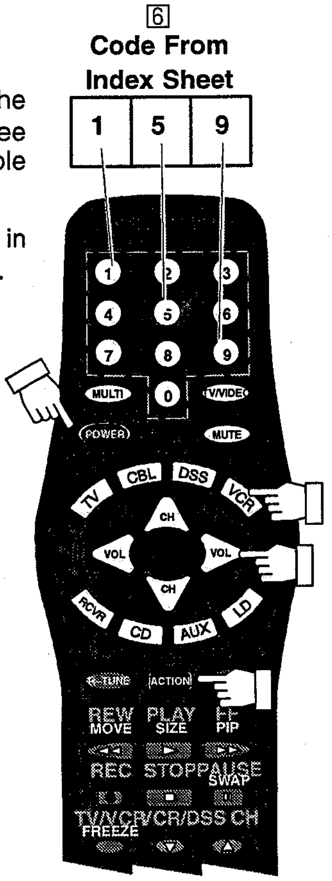
Code Known

Use the following procedure for setting up the remote control using the numerical buttons when the component's remote code is known.

1. Determine the brand of the component.
2. Identify the code(s) associated with the brand from the infrared code index (see following pages). Record all possible codes.
3. Confirm that the component is plugged in and operating properly, then turn it OFF.
4. Press and hold the ACTION button, then the POWER button so that both are pressed at the same time for **at least 5 seconds.** All Mode buttons will flash. Then let go of the buttons.
5. Press the appropriate Mode button for the component. The pressed button will illuminate steadily. All other buttons will go out.
6. Enter the 3-digit code, by using the Remote Control Keypad "0" through "9" buttons. If a proper code was entered, the Mode button will blink twice then go out.

   Now the remote is set for the entered code.
7. Press the POWER button to test the remote. If the correct code is setup for the component (in step 6), the component will turn on.

NOTE: Some brands have multiple codes. Repeat the procedure using another listed code until the component responds correctly.



TNQ2AE003-1

Code Unknown

Use the following procedure for setting up the remote control when the component's remote access code is not known. This procedure uses the "sequence method".

1. Confirm that the component is plugged in and operating properly, then turn it OFF.
2. Press and hold the ACTION button, then the POWER button so that both are pressed at the same time for **at least 5 seconds.** All Mode buttons will flash. Then let go of the buttons.
3. Press the appropriate Mode button for the device. The pressed button will illuminate steadily. All other buttons will go out.
4. Press the VOL button to step over to the next code.
5. Press the POWER button to test the remote. If the correct code is sent, the component will turn on.
6. Once the correct code is found, press the ACTION button to store the code.
7. Repeat from step 3 above until the proper component code is found. It may take several attempts before the correct code is found.

NOTE: If an incorrect code is entered, or when the operation is not completed within 30 seconds, the settings will not change.

Infrared Remote Codes for Specific Components

Helpful Hint: **Write down the code numbers for your components in the space provided below. This will serve as a handy reference whenever you need to reprogram your remote control.**

CABLE Cable TV Converter Box	☐☐☐	**VCR** Video Cassette Recorder	☐☐☐	**CD** Compact Disc Player	☐☐☐
DSS Digital Satellite System	☐☐☐	**RCVR** Receiver or Amplifier	☐☐☐	**LD** Laser Disc Player	☐☐☐
Other Component	☐☐☐	Other Component	☐☐☐	Other Component	☐☐☐
Other Component	☐☐☐	Other Component	☐☐☐	Other Component	☐☐☐

Remote Control
Quick Reference Functional Key Chart

KEY	MODE	FUNCTION
① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⓪	**TV** **VCR** **CABLE, DSS**	Selects Channel Selects Channel Selects Channel
	RECEIVER/AMPLIFIER	① Selects TV Video 1 ② Selects TV Video 2 ③ Selects TV Video 3 ④ Selects Tuner ⑤ Selects CD Player ⑥ Selects Tape Cassette Player ⑦ VCR 1 ⑧ VCR 2 ⑨ VCR 3
	CD PLAYER	Selects Track Number
	LD PLAYER	Selects Track Number
MULTI	**ALL COMPONENTS**	Programmable Button that can Operate up to Six (6) Remote Functions at Once
TV/VIDEO	**TV**	Selects the TV Input Mode
POWER	**ALL COMPONENTS**	Turns On and Off Selected Components
MUTE	**TV, DSS, VCR, LDP** **CABLE** **RECEIVER/AMPLIFIER**	Mutes TV Audio Mutes Audio Mutes Audio
TV	**TV**	TV Mode Selection for Remote Control
CBL	**CABLE**	Cable Mode Selection for Remote Control
DSS	**DSS (DIGITAL SATELLITE SYSTEM)**	DSS Mode Selection for Remote Control
VCR	**VCR**	VCR Mode Selection for Remote Control
RCVR	**RECEIVER/AMPLIFIER**	Receiver/Amplifier Mode Selection for Remote Control
CD	**COMPACT DISC**	CD Mode Selection for Remote Control
AUX	**CASSETTE PLAYER, DVD**	AUX Mode Selection for Remote Control Enables User to Operate a Tape Cassette Player or Digital Video Disc
LD	**LASER DISC PLAYER**	LD Mode Selection for Remote Control
CH CH	**TV** **CABLE** **DSS** **LDP** **CD** **RECEIVER/AMPLIFIER** **DVD**	Channel Up/Down, Menu Navigation Channel Up/Down DSS Guides and Menu Navigation Skip FF, REW Preset or Turning Frequency Skip FWD/Skip REW
VOL VOL	**TV** **CABLE** **DSS** **RECEIVER/AMPLIFIER** **VCR** **LDP**	Volume Up/Down, Menu Navigation Volume Up/Down DSS Guides and Menu Navigation Volume Up/Down TV Volume Up/Down TV Volume Up/Down
R-TUNE	**LDP** **TV** **CABLE** **VCR** **DSS** **RECEIVER/AMPLIFIER** **CD** **TAPE CASSETTE PLAYER**	Side A/B Switches Between Two (2) Channels Switches Between Two (2) Channels Switches Between Two (2) Channels Switches Between Two (2) Channels Switches Between AM and FM Selects Next Disc Selects Tape Cassette Player A or B

Remote Control
Quick Reference Functional Key Chart (cont.)

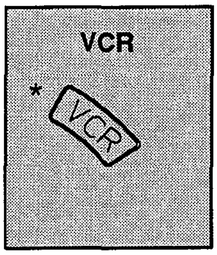
KEY	MODE	FUNCTION
ACTION	TV DSS	Activates TV Menus Acts as Menu Button for DSS
RECALL	TV DSS VCR LDP	Displays Channel, Time, and Audio Mode Displays Current DSS Settings Displays Current VCR Settings Displays Current LDP Settings
REW MOVE ◁◁	TV DSS VCR LDP TAPE CD DVD	PIP Move DSS Guide Rewind Rewind Rewind Selects Previous Track Rewind
PLAY SIZE ▷	TV DSS VCR LDP TAPE CD DVD	PIP Size Enter/Select Play Play Play (in Normal Direction) Play Play
FF PIP ▷▷	TV DSS VCR LDP TAPE CD DVD	PIP On/Off Exit/Clear Fast Forward Fast Forward Fast Forward Selects Next Track Fast Forward
REC ○	DSS VCR TAPE CABLE	One Touch Record in DSS Mode Record Record VCR Record
STOP SEARCH □	TV DVD VCR LDP TAPE CD CABLE	PIP Search Stop Stop Stop Stop Stop VCR Stop
PAUSE SWAP ⏸	DVD TV VCR LDP TAPE CD CABLE	Pause PIP Swap Pause Pause Pause Pause VCR Pause
TV/VCR FREEZE	TV VCR DSS CABLE	PIP Freeze Selects TV/VCR Mode Selects TV/DSS Mode Selects TV/VCR Mode
VCR/DSS CH PIP CHANNEL ▽ △	TV VCR DSS CABLE	PIP Channel Channel Up/Down (2 Tuner PIP Models Only) Channel Up/Down Channel Up/Down VCR Up/Down

VCR Infrared Codes Index

The Universal Infrared Remote Control is capable of operating many brands of VCRs. Refer to page 9 for programming procedures.

NOTE: The Universal Remote Control memory is limited; therefore, some models of VCRs may not operate. The Universal Remote Control is not designed to control all features that are available in all models.

NOTE: After entering the proper infrared code, press the Remote **VCR** Selection Mode button (*).



Code Index for VCRs

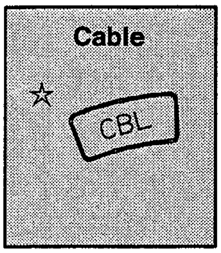
VCR Brand	Code(s)
Adventura	000
Aiko	278
Aiwa	000
Akai	041, 061
American High	035
Asha	240
Audiovox	037
Beaumark	240
Bell & Howell	104
Broksonic	121,184
Calix	037
Canon	035
Carver	081
CCE	072, 278
Citizen	037, 278
Colt	072
Craig	037, 047, 072, 240
Curtis Mathes	035, 041, 060
Cybernex	240
Daewoo	045, 278
Dynatech	000
Electrohome	037
Electrophonic	037
Emerex	032
Emerson	000, 002, 037, 043, 061, 121, 184, 278
Fisher	047, 104
Fuji	033, 035
Funai	000
Garrard	000
GE	035, 060
Goldstar	037, 038
Gradiente	000
Harley Davidson	000
Harman/kardon	038
Harwood	072
Headquarter	046
HI–Q	047
Hitachi	041, 042
Jensen	041
JVC	041, 067
Kenwood	038, 041, 067
KLH	072
Kodak	035, 037
Lloyd	000
Logik	072
LXI	037
Magnavox	035, 039, 081
Magnin	240
Marantz	035, 081
Marta	037
Matsushita	035
MEI	035
Memorex	000, 035, 037, 039, 046, 047, 048, 104 240
MGA	043, 061
MGN Technology	240
Minolta	042
Mitsubishi	043, 061, 067
Motorola	035, 048
MTC	000, 240
Multitech	000, 072
NEC	038, 041, 067
Nikko	037
Noblex	240
Olympus	035
Optimus	037, 048, 104
Panasonic	035, 162, 225, 454
Penney	035, 037, 038, 042 240
Pentax	042
Philco	035
Philips	035, 081
Pilot	037
Pioneer	067
Protec	072
Pulsar	039
Quarter	046
Quartz	046
Quasar	035
Radio Shack	000, 037
Radix	037
Randex	037
RCA	042, 060
Realistic	000, 035, 037, 046 047, 048, 104, 240
Ricoh	034
Runco	039
Samsung	045, 240
Sanky	039, 048
Sansui	041, 067
Sanyo	046, 047, 104, 240
Scott	043, 045, 121, 184
Sears	035, 037, 042, 046, 047,104
Sharp	048
Shintom	072
Shogun	240
Singer	072
Sony	032, 033, 034, 035
STS	042
Sylvania	000, 035, 043, 081
Symphonic	000
Tatung	041
Teac	000, 041
Technics	035,162
Teknika	000, 035, 037
TMK	240
Toshiba	043, 045
Totevision	037, 240
Unitech	240
Vector	045
Vector Research	038
Video Concepts	045, 061
Videosonic	240
Wards	000, 035, 042, 047, 048, 072, 240
XR–1000	000, 035, 072
Yamaha	038
Zenith	033, 034, 039

Cable Converter Box and CD Players Infrared Codes Index

The Universal Infrared Remote Control is capable of operating many brands of Cable Converter Boxes and CD Players. Refer to page 9 for programming procedures.

NOTE: The Universal Remote Control memory is limited; therefore, some models of Cable Converter Boxes and CD Players may not operate. The Universal Remote Control is not designed to control all features that are available in all models.

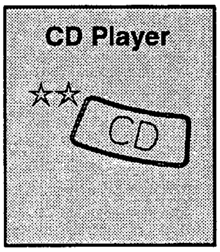
NOTE: After entering the proper infrared code, press the Remote **CBL** Selection Mode button (☆).



Codes for Cable Converter Box

Brand of Cable-TV Box	Code(s)
ABC	003, 007, 008, 011, 013, 014, 017
Archer	153
Century	153
Citizen	153
Contec	019
Dae Ryung	008
Garrard	153
Gemini	015
General Instrument	011, 476
Goldstar	144
Hamlin	009, 020, 259
Hitachi	011
Hytex	007
Jasco	153
Jerrold	003, 011, 012, 014, 015, 476
Memorex	000
Oak	007, 019
Panasonic	000, 021, 107
Paragon	000
Philips	153
Pioneer	144, 533
Pulsar	000
RCA	021
Regal	020, 259
Rembrandt	011
Runco	000
Samsung	144
Scientific Atlanta	008, 017, 477
Signal	015
Signature	011
Sprucer	021
Starcom	003, 015
Stargate	015
Starquest	015
Tocom	012, 013
Toshiba	000
Tusa	015
Unika	153
United Artists	007
United Cable	003
Universal	153
Zenith	000, 525

NOTE: After entering the proper infrared code, press the Remote **CD** Selection Mode button (☆☆).



Codes for CD Players

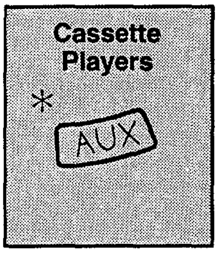
Brand of CD Players	Code(s)
Aiwa	124, 157
CA Audio Lab	029
Carver	157
Denon	003
DKK	000
Emerson	305
Fisher	048
Genexxa	032, 305
Harman–Kardon	426
Hitachi	032
JVC	072
Kenwood	028, 037, 048, 190
Krell	157
LXI	305
Magnavox	157
Marantz	029, 157
MCS	029
Mission	157
Nakamichi	147
NSM	157
Onkyo	101
Optimus	000, 032, 037, 305, 426, 468
Panasonic	029, 367
Philips	157
Pioneer	032, 468
Proton	157
QED	157
Quasar	029
RCA	305
Rotel	157
SAE	157
Sansui	157, 305
Scott	305
Sears	305
Sharp	037
Sherwood	426
Sony	000
Technics	029, 303
Victor	072

Cassette Players, Receivers, and Amplifiers Infrared Codes Index

The Universal Infrared Remote Control is capable of operating many brands of Cassette Players, Receivers, or Amplifiers. Refer to page 9 for programming procedures.

NOTE: The Universal Remote Control memory is limited; therefore, some models of Cassette Players, Receivers, and Amplifiers may not operate. The Universal Remote Control is not designed to control all features that are available in all models.

NOTE: After entering the proper infrared code, press the Remote **AUX** Selection Mode button (✻).



Code Index for Cassette Players

Brand of Cassette Players	Code(s)	Brand of Cassette Players	Code(s)
Aiwa	029	Panasonic	272
Carver	029	Philips	029
Denon	076	Pioneer	027, 220
Kenwood	070	Sansui	029
Magnavox	029	Sherwood	337, 338
Marantz	029	Sony	170, 243
Nakamichi	147	Technics	229
Optimus	027, 220, 337, 338	Wards	027
		Yamaha	094, 097

NOTE: After entering the proper infrared code, press the Remote **RCVR** Selection Mode button (✻✻).

Receivers Amplifiers
✻✻
RCVR

Code Index for Receivers And Amplifiers

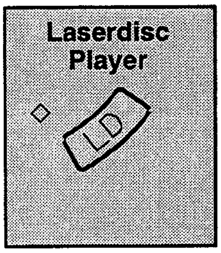
Brand of Receiver / Amplifier	Code(s)	Brand of Receiver / Amplifier	Code(s)
ADC	531	Panasonic	039
Aiwa	121, 158, 189	Penney	195
Carver	008, 042, 189, 269	Philips	189, 269
Casio	195	Pioneer	013, 014, 080, 300,
Clarinette	195		531
Denon	004	Quasar	039
Fisher	042, 219	RCA	531
JVC	074	Realistic	195
Kenwood	027, 186	Sansui	189, 321
Lloyd's	195	Sanyo	219
Magnavox	189, 195, 269, 531	Sharp	186
Marantz	039, 189, 269, 321	Sherwood	502
MCS	039	Sony	158
Modulaire	195	Technics	039, 208, 308, 309,
NAD	320		518
Nakamichi	321, 347	Victor	074
Onkyo	135	Wards	013, 014, 042, 080,
Optimus	013, 080, 186, 219,		158, 189
	300, 531	Yamaha	176, 186, 354
		Yorx	195

Laserdisc, DSS (Digital Satellite System), and DVD (Digital Videodisc) Infrared Codes Index

The Universal Infrared Remote Control is capable of operating selected brands of Laserdisc, DSS Digital Satellite System, and DVD (Digital Videodisc). Refer to page 9 for programming procedures.

NOTE: The Universal Remote Control memory is limited; therefore, some models of Laserdisc, DSS Digital Satellite System, and DVD (Digital Videodisc) may not operate. The Universal Remote Control is not designed to control all features that are available in all models.

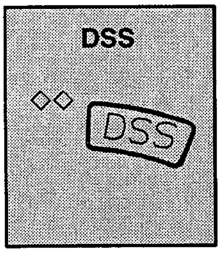
NOTE: After entering the proper infrared code, press the Remote **LD** Selection Mode button (◇).



Codes for Laserdisc

Brand of Laserdisc	Code(s)
Mitsubishi	059
NAD	059
Panasonic	204
Pioneer	059
Quasar	204
Sony	201

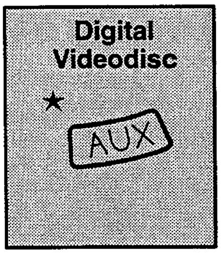
NOTE: After entering the proper infrared code, press the Remote **DSS** Selection Mode button (◇◇).



Codes for DSS (Digital Satellite System)

Brand of Satellite	Code(s)
Panasonic	701
RCA	566
Sony	639

NOTE: After entering the proper infrared code, press the Remote **AUX** Selection Mode button (★).



Codes for DVD (Digital Videodisc)

Brand of DVD	Code(s)
Panasonic	490

Convergence Adj.

This unit incorporates a special ***Digital Convergence Adjustment*** feature. For the convenience of the customer, this adjustment is preset at the factory. Adjustment may be required when the Receiver is moved due to the influence of earth's magnetic field on the projection tubes. Convergence can also be reset as necessary. Perform the convergence adjustment using the following procedure.

GREEN ADJUSTMENT

Turn the Receiver ON and tune in a local channel that provides a clear picture. The test pattern requires a received channel for stabilization. Green is the standard reference for the convergence adjustment procedure. Follow the steps below.

1. Press the ACTION button to display the Main Menu.
2. Press the CH UP/DOWN and VOL LEFT/RIGHT buttons to highlight the Set Up Icon.
3. Press the ACTION button to display the Set Up Menu.
4. Press the CH DOWN button to highlight CONVERGENCE ADJ.
5. Press the VOL LEFT/RIGHT button to display the Convergence Adjustment screen.

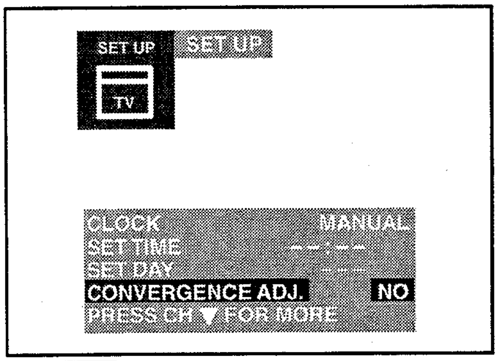

SET UP
SET UP
TV
CLOCK MANUAL
SET TIME --:--
SET DAY ---
CONVERGENCE ADJ. NO
PRESS CH ▼ FOR MORE

Fig. 18a

6. Green horizontal and vertical test lines must be present at the screen frame mechanical reference marks.
7. Align the Green test marks with the frame mechanical reference marks. Press the VOL LEFT/RIGHT button on Remote Control for horizontal movement and the CH UP/DOWN button on Remote Control for the vertical

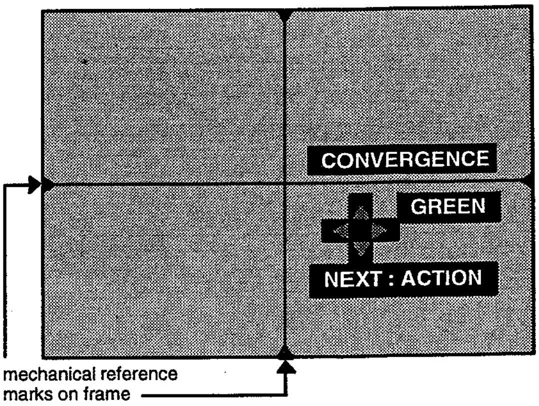

CONVERGENCE
GREEN
NEXT : ACTION
mechanical reference marks on frame

Fig. 18b

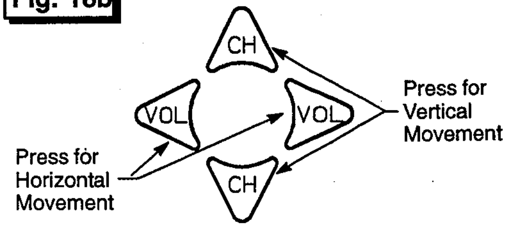

CH
VOL
VOL
CH
Press for Vertical Movement
Press for Horizontal Movement

Fig. 18c

RED ADJUSTMENT

8. Press the ACTION button on the Remote Control.

   Note: A properly converged cross pattern will appear as white with a minimum of red color fringing.
9. Align the Red Cross with the white cross pattern at the center of the screen. Press the VOL LEFT/RIGHT button on Remote Control for horizontal movement and the CH UP/DOWN button on Remote Control for the vertical movement.

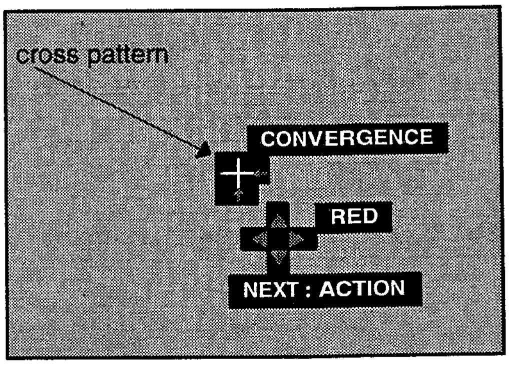

cross pattern
CONVERGENCE
RED
NEXT : ACTION

Fig. 18d

BLUE ADJUSTMENT

10. Press the ACTION button on the Remote Control.
11. Align the Blue Cross with the white cross pattern at the center of the screen. Press the VOL LEFT/RIGHT button on Remote Control for horizontal movement and the CH UP/DOWN button on Remote Control for the vertical movement.
12. Press the ACTION button three times to exit menus.

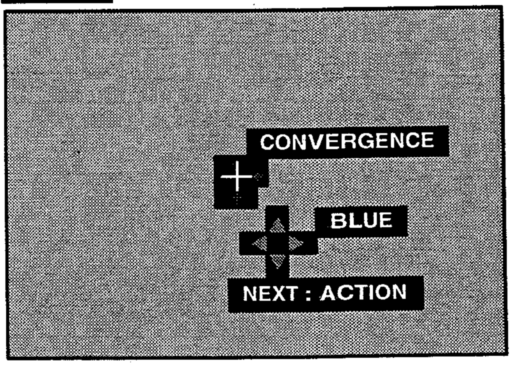
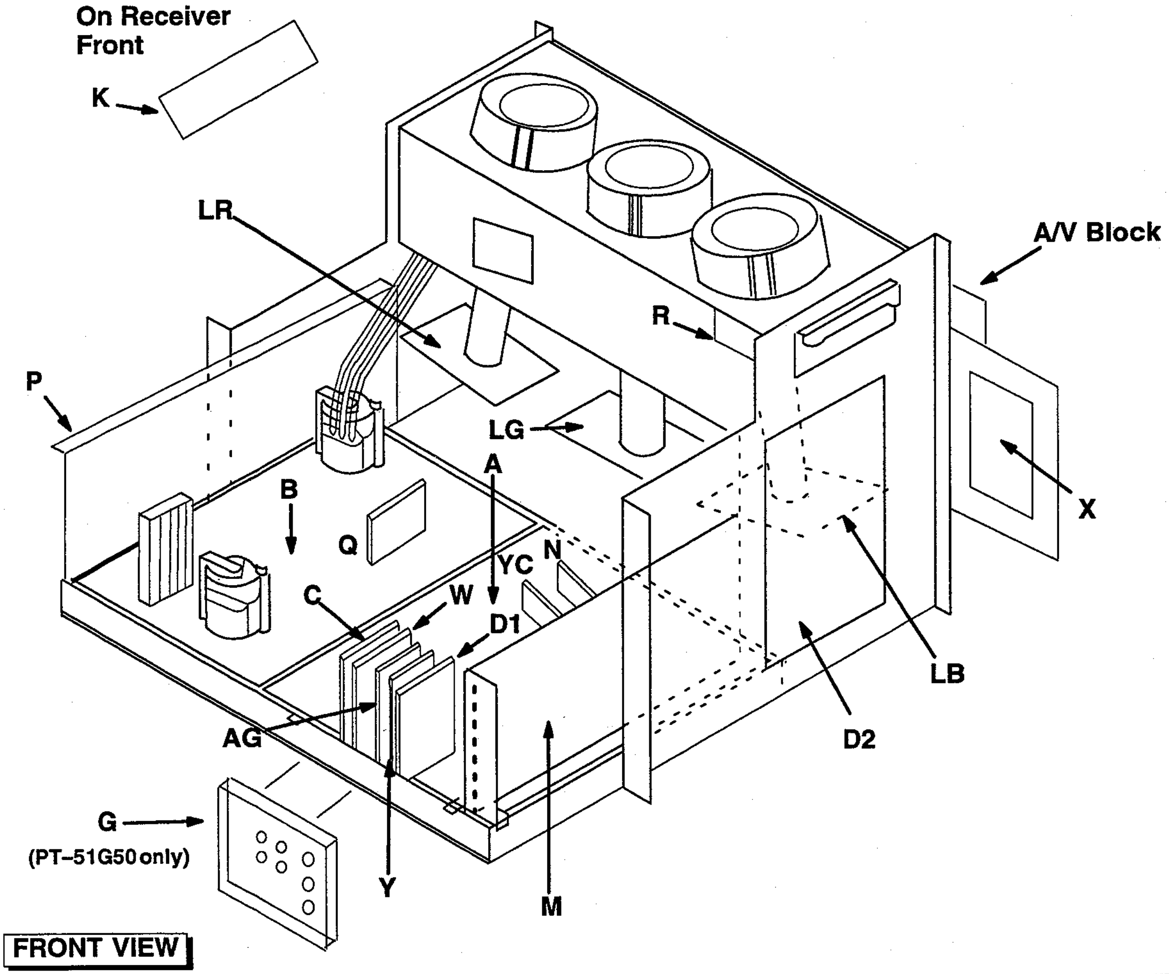

CONVERGENCE
BLUE
NEXT : ACTION

Fig. 18e

NOTE: TO PREVENT PICTURE TUBE DAMAGE, DO NOT LEAVE TEST PATTERN ON FOR A LONG PERIOD OF TIME.

Chassis Boards Layout



FRONT VIEW

Fig. 19a

Board	Description
A	Main Chassis – MPU, Audio and, Convergence out
AG	Video Chroma Processing
B	Switching Power Supply, Horiz. Deflection, over current Protector
C	Digital Convergence
D1	Audio Control, Audio Pro–Logic
D2	Sub power Supply – Audio Amp.
K	Front panel control
LB	CRT blue drive
LG	CRT green drive, VM drive

Board	Description
LR	CRT red drive
M	A/V Switch, 2nd VIF, audio control
N	VIF/SIF & MTS Decoder, det.
P	AC in, DM drive, H. drive, EHT correction.
Q	Over Deflection Blanking, EHT protector,
R	Remote Control Board
W	White balance, switching
X	A/V Terminals
Y	PIP Processing, controller
YC	Digital Comb Filter, Artificial Intelligence Control (AIC)

Disassembly for Service

NOTE: Board ground wires may have to be disconnected to disassemble some boards. All ground wires must be reconnected using jumper leads, if necessary, before power is applied to Receiver for service.

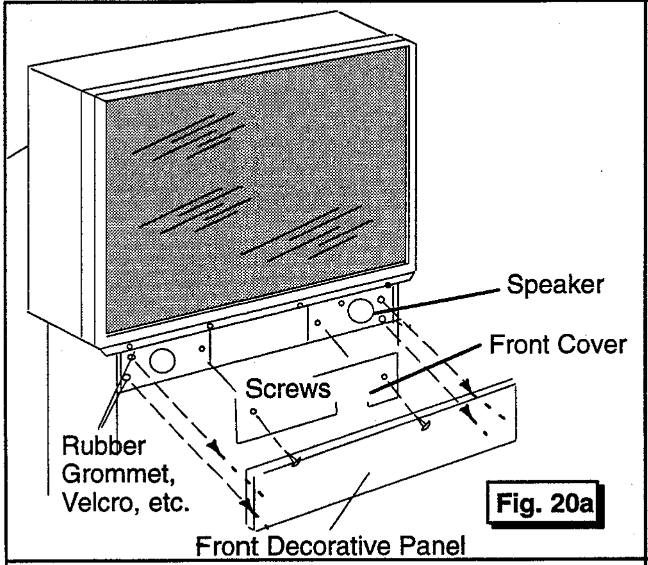

Speaker
Front Cover
Screws
Rubber Grommet, Velcro, etc.
Front Decorative Panel

Fig. 20a

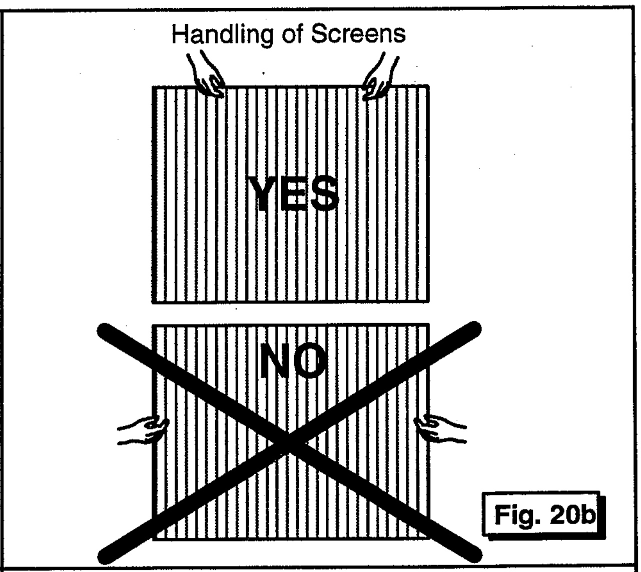

Handling of Screens
YES
NO

Fig. 20b

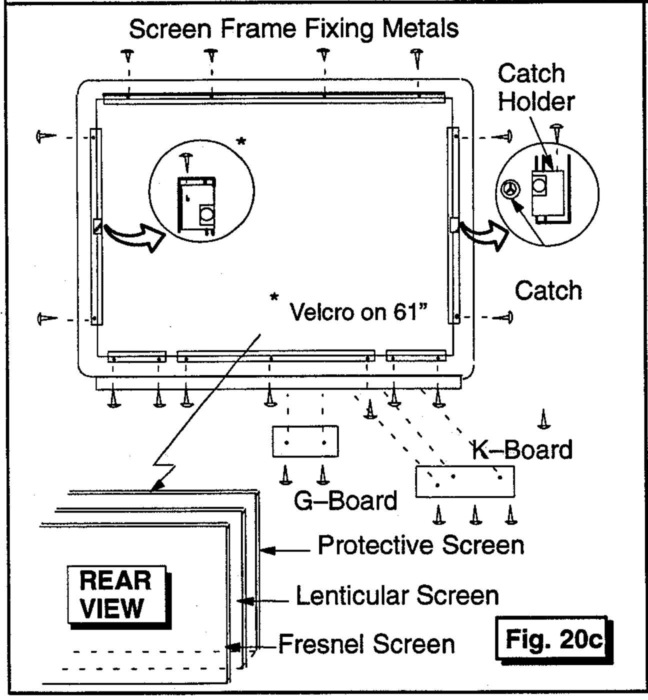

Screen Frame Fixing Metals
Catch Holder
Catch
* Velcro on 61"
K–Board
G–Board
Protective Screen
Lenticular Screen
Fresnel Screen
REAR VIEW

Fig. 20c

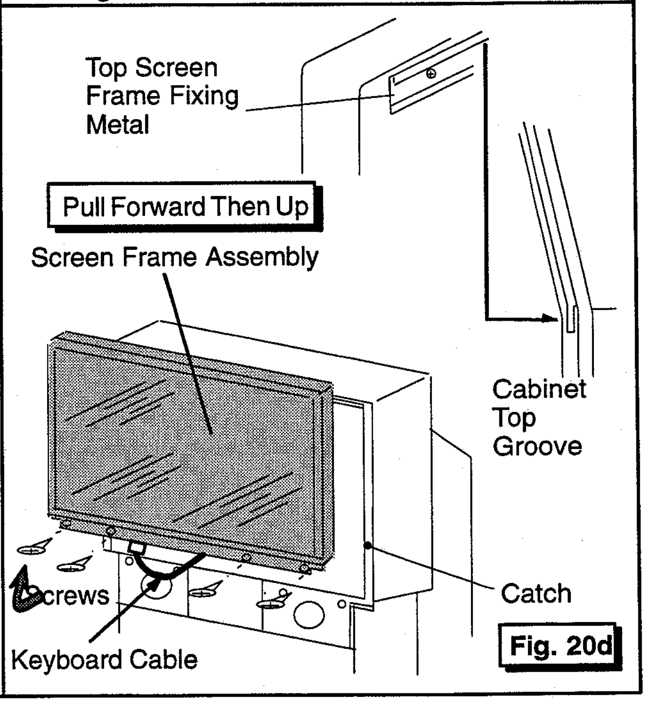

Top Screen Frame Fixing Metal
Pull Forward Then Up
Screen Frame Assembly
Cabinet Top Groove
Screws
Catch
Keyboard Cable

Fig. 20d

Front Decorative Panel Removel

1. The front decorative panel is secured by (6) striker pins. Grip the panel at the top corners and pull to remove.
2. The front cover is secured by (2) screws.

Screen Frame Assembly

1. Remove the front decorative panel
2. Remove (4) screws from the bottom edge of the frame.
3. Unplug the keyboard cable from the bottom of the screen frame.
4. Grasp the frame on the sides at the bottom. Pull out on bottom, push up frame then pull out top edge.

Screen

1. Place the frame face down on a soft surface.
2. Remove the (4) screen frame springs from the top edge (8) screws.
3. Remove the (2) catches from each side (2) screws.
4. Remove (2) the top edge, (2) right edge, (2) bottom edge, (2) left edge metal screen fixings (18) screws.
5. Remove the (4) corner metal screen fixing (8) screws.
6. Remove the K–board (3) screws.

Disassembly for Service (cont.)

Disassembly of Speaker Units Replacement

13. Remove the front decorative panel located under control panel. (see Fig. 14a)
14. Each Left and Right speaker is secured to the cabinet with (4) screws for each bracket.
15. Disconnect the R & L speaker lead connectors from the speaker units.

Bottom Back Cover (Hard Board) (Fig. 21a)

16. Remove (9) screws around its perimeter.
17. Remove (3) screws from around the A/V terminal board.

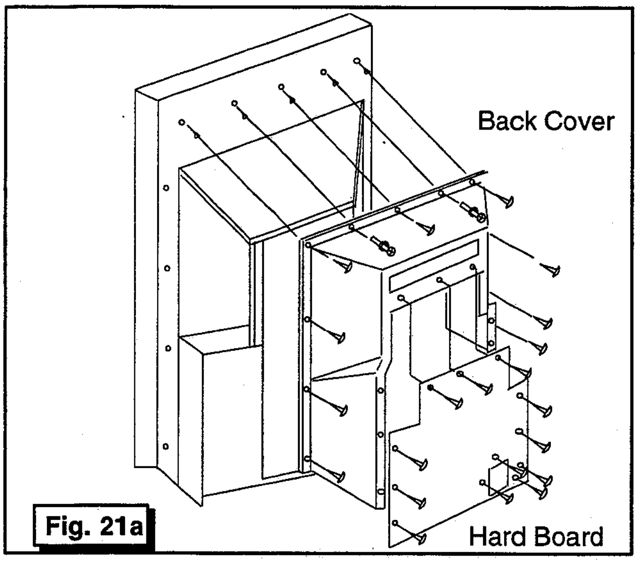


Fig. 21a

Back Cover Assembly (Fig. 21a)

22. The top back cover is secured with (13) screws around its perimeter.
23. Remove (13) screws around its perimeter.
24. Slide bottom cover up and pull out at the bottom.

Main Chassis Block (Fig. 21b)

18. Remove Front Decorative Panel and Front Cover. (Fig. 14a)
19. Remove the Bottom Back Cover (Hard Board). (Fig. 21a)
20. The main chassis Block is secured to the cabinet shelf by (4) screws.
21. Remove Wires (K1 connector and Speaker connectors) and Pull out the Main Chassis Block.

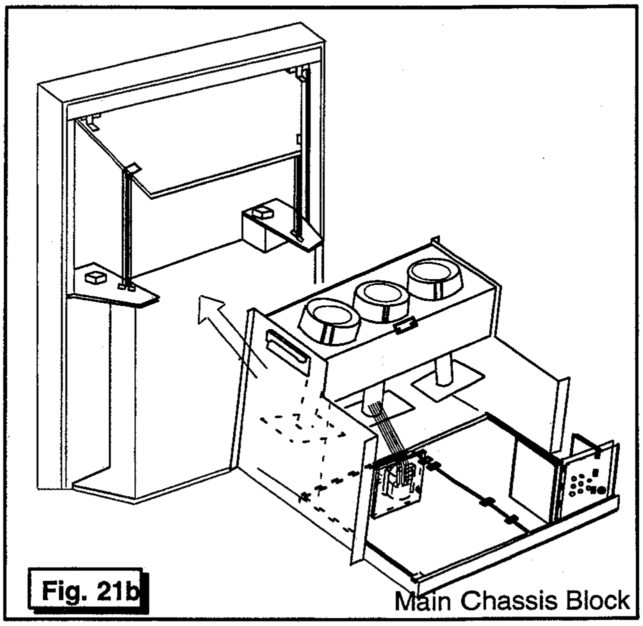


Fig. 21b

NOTE: Main Chassis Block can be serviced either in normal position or laying on its back side (protect hookup terminal block from damage).

Disassembly for CRT Replacement

To facilitate CRT replacement, the complete CRT mounting chassis does not need to be removed.

25. Remove the main chassis block from the cabinet (See Fig. 21b),
26. Remove the Optical bracket metal cover (rear side) by removing (6) screws from back, (2) screws from top, and (2) screws from each side. (See Fig. 21c)

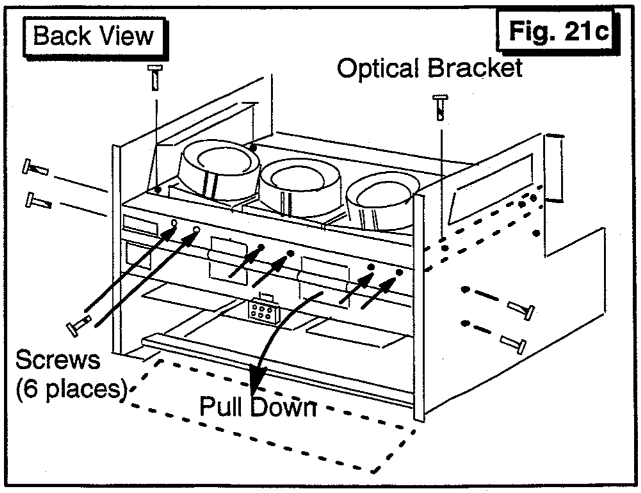


Fig. 21c

Disassembly for Service (cont.)

1. Remove the defective CRT anode lead from the high voltage distributor block that is mounted on the Flyback Transformer. Discharge to CRT chassis.
2. Unplug connectors from the B–Board. (See board layout.) B9 for Red, B10 for Green, or B11 for Blue.
3. Unplug the defective CRT black Dag ground connector from the CRT Board.
4. Remove the CRT Board from the defective CRT neck.
5. Remove (2) screws from the defective CRT housing (see Fig 22a).**

   CAUTION: Do not remove the (4) CRT lens screws.
6. Release CRT anode lead from CRT chassis wire clamp and all other wires from holders.
7. Loosen a screw that secured the VM Coil and remove it from CRT neck.
8. Loosen a screw that secured the DY and remove it from the CRT neck.

X–RAYS SHIELD ⚠

9. To insure X–Rays radiation protection, the lens must be mounted in place at all times when power is applied to the Receiver.

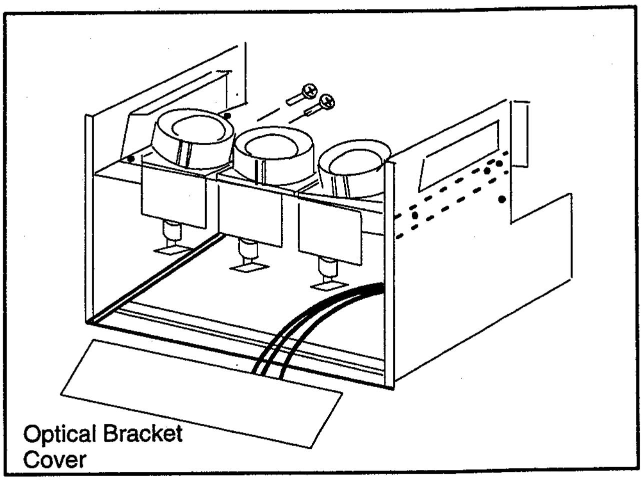


Fig. 22a

**Caution: Support the CRT Assembly when loosening screws.

CRT Replacement

1. Remove CRT focus lens assembly (4 screws).

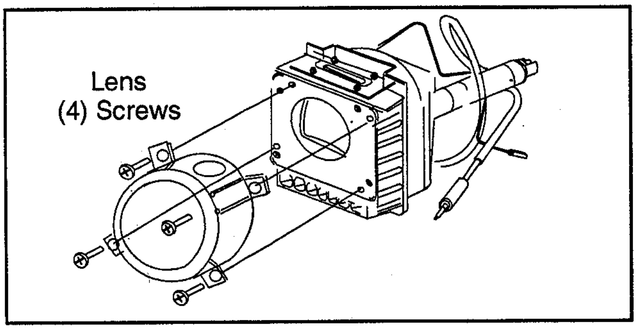


Fig. 22b

2. Lay CRT face down on a soft cloth.
3. Note position of yoke with centering tabs and remove from defective CRT.
4. Remove CRT Dag ground from defective CRT. Mount it on the replacement CRT exactly as it was on the defective CRT.

   Note: Replacement CRT comes with H.V. anode lead attached.

5. Wire the anode lead wire.

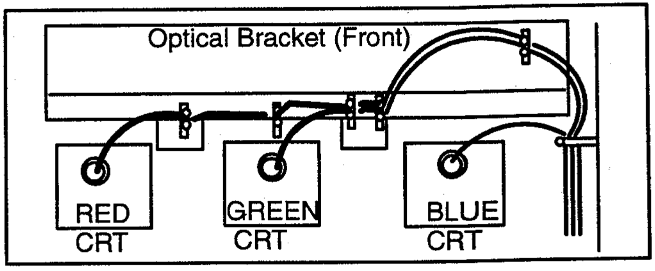


Fig. 22c

6. Install yoke with other CRT neck assemblies on CRT neck in the same order and position as removed from the defective CRT.
7. Press yoke against bell of CRT and tighten the clamp just snug enough so it will not easily shift.
8. Assemble CRT focus lens assembly to new CRT with (4) screws. Make sure focus lens adjustment nut is in the same location as on other CRT focus lens.

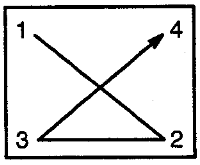


Fig. 22d

Note: Please assemble with screws in the order shown and tighten with the same torque.

Serviceman Mode (Electronic Controls)

This chassis has new electronic technology using the I^{2}C Bus Concept. The system usually performs as a control function and replaces many of the required mechanical controls. Instead of adjusting various mechanical controls individually, many of the control functions are now performed electronically by using "On Screen Menu". (The Serviceman Adjustment Mode.)

NOTE: It is suggested that the service technician reads all the way through and understand the procedures for Entering/Exiting the Serviceman Adjustment Mode; then proceed to working with the Receiver.

Entering Serviceman Mode:

When minor adjustments are necessary to be done to the electronic controls, enter the Serviceman Mode using the Remote Control.

Procedures

1. Select SET–UP icon and select CABLE mode.
2. Select TIME Icon and set SLEEP timer to 30.
3. Press ACTION button twice to cancel Icon Menus.
4. Tune to Channel 124.
5. Adjust VOLUME to Minimum (0).

   On Receiver press the ◁VOL button (decrease). Red "CHK" appears in upper corner.

"The Receiver enters the Servicemans Mode".

(The volume will adjust normally.)

(All customer controls are set to a nominal level.)

6. **Press** the POWER button on the Remote Control to select one of five Serviceman Adjustment Modes.
   - B = Serviceman SUB ADJUSTMENTS
   - C = Serviceman CRT ADJUSTMENTS
   - D = Serviceman Pincushion ADJUSTMENTS
   - S = Factory ADJUSTMENTS only
   - V = Serviceman SUB ADUSTMENTS
   - "CHK" Mode = Normal operation of CH ▲▼ and ◁VOL VOL▷. Perform necessary adjustments as indicated on the following pages.

IMPORTANT NOTE:

Always Exit Serviceman Mode After Use.

To Exit Serviceman Mode:

Press ACTION and POWER buttons simultaneously for approximately 2 seconds.

"The Receiver exits Serviceman Mode".

The Receiver momentarily shuts off; then comes back on; tuned to channel 3; with a preset level of sound.

ADJUSTMENT MODE DETAILS

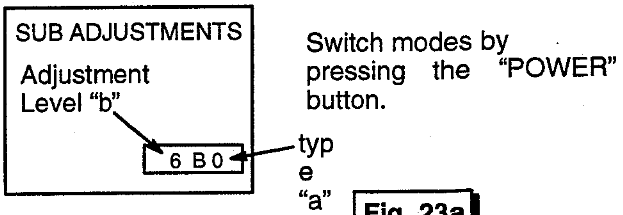


Fig. 23a

Serviceman Sub Adjustments: B0~B5

(Table 23a)

a) Press

CH ▲▼ buttons on the Remote Control to select any of 6 Service Sub Adjustment Addresses. ("a" in Fig. 23a)

b) Press

◁VOL VOL▷ buttons on the Remote Control to adjust the level of the selected Service Adjustment.

Important Note:

Write down the original values ("b" in the adjustment mode details, Fig. 23a) for each address adjustment before modifying values.

Table 23a

Adjustment Range and Default level values for Service Adjustment

Service Adjustment	Adj Range	Default Level
B0: Sub Color	0 ~ 63	32
B1: Sub Tint	0 ~ 63	32
B2: Sub Brightness	0 ~ 192	96
B3: Sub Contrast	0 ~ 63	32
B4: RF AGC	0 ~ 127	32
B5: AI Sub Brightness	0 ~ 192	96

Press the POWER button on the Remote Control to select Serviceman CRT Adjustment Mode.

Serviceman Mode (cont.)

Serviceman CRT Adjustments: C0~CA (Table 24a)

a) Press

CH ▲▼ buttons on the Remote Control to select any of 11 Service CRT Adjustment Addresses ("a" in adjustment mode details).

b) Press

◁VOL|VOL▷ buttons on the Remote Control to adjust the level of the selected Service Adjustment ("b" in Fig. 21a).

Important Note:
Write down the original values ("b" in the adjustment mode details, Fig. 21a) for each address adjustment before modifying values.

Table 24a

Adjustment Range and Default level values for Service Adjustment

Service Adjustment	Adj Range	Default Level
C0: RED Cutoff (Low Light)	** 0~3 20 ~ 235	2 20
C1: GRN Cutoff (Low Light)	0 ~ 255	128
C2: BLU Cutoff (Low Light)	** 0~3 20 ~ 235	2 20
*C3: User Bright	0 ~ 63	31
†C4: Sub Bright	0 ~ 192	46
C5: Red Drive (High Light)	0 ~ 255	128
C6: Blu Drive (High Light)	0 ~ 255	128
C7: Red Drive (Cool)	0 ~ 63	12
C8: Blu Drive (Cool)	0 ~ 63	12
C9: Red Drive (Warm)	0 ~ 63	20
CA: Blu Drive (Warm)	0 ~ 63	12

**Adjustment indicated in steps:
0 20 ~ 0 235
1 00 ~ 1 235
2 00 ~ 2 235
3 00 ~ 3 235

*User set adjustment – same as customer menu adjustment for Brightness

†Same as Sub Adjustment DAC Sub Brightness (B2)

Press the POWER button on the Remote Control to select Serviceman Pincushion Adjustment Mode.

Serviceman Pincushion Adjustments: D0~DB (Table 24b)

a) Press

CH ▲▼ buttons on the Remote Control to select any of 12 Service Adjustment Addresses. ("a" in adjustment mode detail)

b) Press

◁VOL|VOL▷ button on the Remote Control to adjust the level of the selected Service Adjustment. ("b" in adjustment mode details)

Important Note:
Write down the original values ("b" in the adjustment mode details, Fig. 21a), for each address adjustment before modifying values.

Table 24b

Adjustment Range and Default level values for Service Adjustment.

Service Adjustment	Adj Range	Default Level
D0: Vertical Size	0~127	64
D1: Vertical Linearity	0~63	*32
D2: Vertical S Correct	0~63	*32
D3: Horizontal Size	0~63	50
D4: Horizontal Centering	0~31	16
D5: E–W Parabola	0~63	31
D6: Vertical Keystone	0~63	33
D7: E–W Top Corner	0~15	8
D8: E–W Bottom Corner	0~15	8
D9: EHT Vertical Compression	0~15	3
DA: EHT Horizontal Compression	0~15	8
DB: VDC	0~63	32

*** Factory Adjustment Only**

Press the POWER button on the Remote Control to select the next Serviceman Mode.

Factory Adjustments: S0~S2A (Table 23a)

a) Press

CH ▲▼ buttons on the Remote Control to select any of 43 Service Factory Adjustment Addresses. ("a" in adjustment mode details)

b) Press

◁VOL|VOL▷ button on the Remote Control to adjust the level of the selected Service Adjustment. ("b" in Fig. 21a)

Serviceman Mode (cont.)

Important Note:
Write down the original values ("b" in the adjustment mode details, Fig. 21a) for each address adjustment before modifying values.

Table 25a
Adjustment Range and Default level values for Factory Only

Service Adjustment	Adj Range	Default Level
SO = Pre & Overshoot	0~7	3
S1 = Black Expansion Gain	0~15	4
S2 = White Gamma Level	0~15	7
S3 = White Gamma Gain	0~15	15
S4 = Small Gamma Level	0~15	7
S5 = R–Y Demod, Axis (Angle)	0~31	7
S6 = R–Y Demod, Axis (Gain)	0~63	23
S7 = G–Y Ration SW	0~3	1
S8 = White Letter Correction	0~15	0
S9 = White Letter Slice Volt.	0~15	5
SA = Switches (TV)	0~255	36
SB = Switches	0~255	8
SC = Switches of (Video)	0~255	36
SD = Slope of Contrast	0~255	109
SE = Input Level	0~63	32
SF = Stereo PLL VCO	0~63	32
S10 = Filter	0~63	32
S11 = Low Frequency Separation	0~63	32
S12 = High Frequency Separation	0~63	32
S13 = Adjust 0f Clock	0~255	128
S14 = Font Mode of Scrole Output	0~2	1
S15 = Output Position Mode	0~2	0
S16 = PIP Color Adjust	0~127	23
S17 = PIP Color Reset (Tint)	0~127	54
S18 = PIP Frame and Background	0~7	4
S19 = PIP Vertical Position (1/9 Top)	0~255	234
S1A = PIP Vertical Position (1/9 Bottom)	0~255	106
S1B = PIP Horizontal Position (1/9 Left)	0~255	27
S1C = PIP Horizontal Position (1/9 Right)	0~255	129
S1D = PIP Vertical Position (1/16 Top)	0~255	234
S1E = PIP Vertical Position (1/16 Bottom)	0~255	88
S1F = PIP Horizontal Position (1/16 Left)	0~255	26
S20 = PIP Horizontal Position (1/16 Right)	0~255	141
S21 = V1 Gain	0~15	8
S22 = AI Sound Music	0~255	30
S23 = AI Sound Vocal	0~255	60
S24 = No AI Sound	0~255	240
S25 = AI Sound Upset	0~15	2
S26 = AI Sound Downstep	0~15	4
S27 = Sound Auto Bass Max	0~63	50
S28 = Sound Auto Treble Max	0~63	55
S29 = Cut Off Offset R	0~40	20
S2A = Cut Off Offset B	0~40	20

Serviceman Mode (cont.)
Factory Adjustments: V0~VD (Table 26a)

a) Press

CH ▲▼ buttons on the Remote Control to select any of 14 Service Adjustment Addresses. ("a" in adjustment mode details)

b) Press

◁VOL VOL▷ button on the Remote Control to adjust the level of the selected Service Adjustment. ("b" in adjustment mode details)

Important Note:
Write down the original values ("b" in the adjustment mode details, Fig. 21a), for each address adjustment before modifying values.

Table 26a
Adjustment Range and Default level values for Service Adjustment

Service Adjustment	Adj Range	Default Level
V0 = Static Convergence	–	*0
V1 = Digital Convergence	–	*0
V2 = Color SW	0~6	*0
V3 = G Gain	0~195	75
V4 = DC Level	0~12	5
V5 = Blue Gamma Knee Point 1	0~55	10
V6 = Blue Gamma Gain	0~95	35
V7 = Blue Gamma Knee Point 2	0~165	55
V8 = ABL Step	0~255	1
V9 = ABL	0~255	255
VA = ABL Low Level Threshold	0~15	15
VB = ABL Input Level Display	–	–
VC = 3D/YC Y Delay (TV)	0~15	6
VD = 3D/YC Y Delay (Video)	0~15	0

*** Service Adjustment Only**

Press the POWER button on the Remote Control to select the "CHK" TV Mode.

To Check Purity:

Press the RECALL button on the Remote Control to enter Purity Field Check Mode.

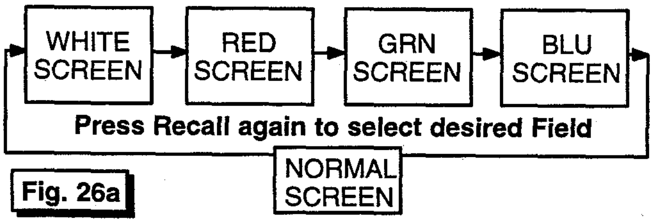


Fig. 26a

CRT Set Up

CAUTION: Insure yoke plugs on B and C–Boards are reconnected before turning the Receiver ON to prevent damage to the horizontal output transistor and/or CRTs.

1. Connect test generator to the antenna terminal and set for crosshatch pattern.
2. Loosen yoke clamp, seat yoke against bell of CRT and rotate to correct yoke tilt (compare to adjacent CRT). Tighten yoke clamp.
3. Remove adhesive from centering tabs and set centering tabs for zero correction. (Fig. 27a)
4. Cover replacement CRT lens and static converge the tubes not replaced, if needed. Check size and linearity of pattern and adjust as required.
5. Uncover replacement CRT lens and cover other two CRT lenses. Adjust electrical and optical focus (lens), if required.
6. Uncover all CRT lenses and use yoke centering magnet to converge replacement CRT (in center area of screen only) with other two CRTs. Disregard non–convergence in areas other than center area.
7. Perform White Balance adjustments

Dynamic Focus Adjustment

1. Focus adjustments should be performed after 1 hour of aging.
2. Use oscilloscope with 100 : 1 probe.
3. Apply crosshatch pattern.
4. Connect oscilloscope to connector R1567 (Q1552 side) and heatsink (GND) on B–Board.
   Scope Setting: V=20 V(100:1), t=5 ms.
5. Adjust the Red, Blue and Green focus VR on the focus block for best focus of overall picture of each CRT. (Fig. 27c.)
6. Adjust R1947 VR (Q-Board) so that waveform ① in figure 27b is 430 ± 20 V.
7. Adjust R1948 VR (Q-Board) so that waveform ② in figure 27b is 560 ± 20 V.
8. Confirm waveform as shown in Fig. 27b.
9. Proceed with Focus Adjustments.

Focus – Electrical Adjustment

1. Cover the Red and Blue CRT, projecting green only. Adjust the Green Focus VR for best focus of overall picture. (Fig. 27c)
2. Repeat for Red focus VR while projecting Red only.
3. Repeat for Blue. (Best focus at bottom left corner of screen)

Focus – Optical Lens Adjustment

NOTE: This adjustment normally should not require resetting unless the lens has been replaced or adjustment has changed.

1. Optical focus adjustment is located on the top of each CRT lens system. Loosen the adjustment knurled locking knob. (Fig. 27d)
2. Turn the Receiver ON apply and view a crosshatch pattern.
3. Adjust each lens focus for best focus while viewing each CRT.
4. Cover the Red and Blue CRT, projecting green only. Rotate the Green lens for best focus around screen center area.
5. Do the same for the Red focus lens while projecting Red only.
6. Repeat for Blue.

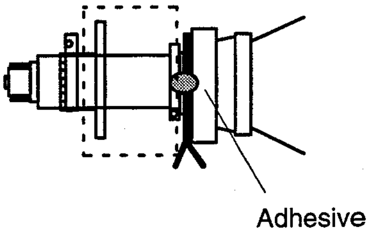


Fig. 27a

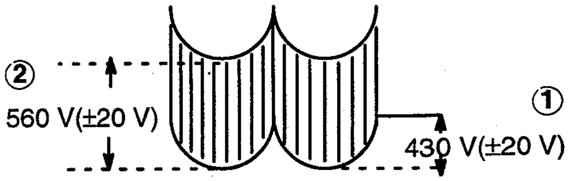


Fig. 27b

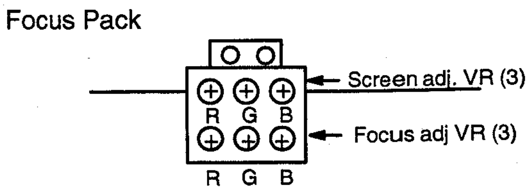
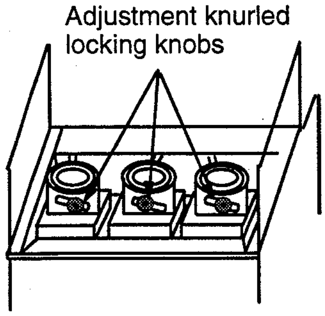


Fig. 27c



Optical lens focus adjustment **Fig. 27d**

Service Adjustment Procedures

ALL SERVICE CONTROLS ARE FACTORY PRESET AND SHOULD NOT REQUIRE ADJUSTMENT UNLESS CONTROL AND/OR ASSOCIATED COMPONENTS ARE REPLACED.

B+ Confirmation

Table 28a

Input	**Initial setting**
White screen in SVC mode by Pressing the RECALL button	1. Normalize the VIDEO controls with Picture Icon Settings Menu. 2. Set AUDIO volume to Minimum. 3. Set AC line input to 120 volts.

High Voltage ⚠

Table 28b

Input	**Equipment**	**Component**
Apply all black video signal.	High voltage meter (40 kV static type)	
Test point	**Initial condition**	
+ :HV distributor – :Chassis	Picture: Normal	

Adjustment Procedures

1. Turn Receiver OFF.
2. Remove the Red CRT anode lead from the Distributor by grasping the anode lead protective cap top and squeezing it against the locking cap body under the protective cap. Rotate CCW 1/4 turn and pull anode lead sleeve out of distributor connector (see p. 2–SAFETY PRECAUTIONS). Discharge the anode lead to the CRT metal chassis. (Fig. 3b)
3. Insert H.V. meter lead into the distributor until it makes a positive contact with the center connector. Connect the other end to the H.V. meter.
4. Turn the Receiver ON.
5. Using a calibrated high voltage meter, confirm that the high voltage is 31.5 ± 1.0 kV.

   WARNING: Critical components that affect high voltage must be replaced with IDENTICAL VALUE, TOLERANCE, and RATING to maintain product safety and X–Rays Radiation protection. See notes on schematic diagrams.

HIGH VOLTAGE DISTRIBUTOR ASSEMBLY ON FBT

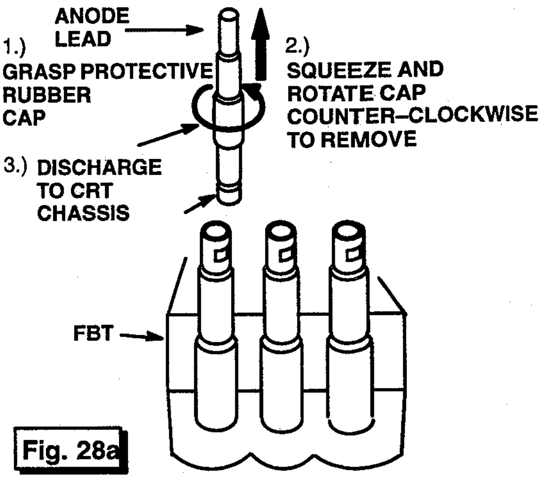

1.) ANODE LEAD
GRASP PROTECTIVE RUBBER CAP
2.) SQUEEZE AND ROTATE CAP COUNTER–CLOCKWISE TO REMOVE
3.) DISCHARGE TO CRT CHASSIS
FBT

Fig. 28a

Service Adjustment and Test Points

Main Tuner Adjustments

RF AGC

This adjustment should be performed only if overloading on strong signal or busy background (snow) is present on moderate strength signals.

Table 29a

Input	Equipment	Test point	Adjustment level	Initial condition
RF Signal	D.V.M.	TPM3 (M25 Pin 4)	Subadjustment B4	N/A

Adjustment Procedures

1. In Serviceman Mode for making electronic adjustments, select sub adjustment (B4).
2. Connect the DVM to TPM3 and ground.
3. Note D.V.M. reading.
4. Increase the adjustment until the snow is eliminated or decrease adjustment until overloading is improved.
5. Confirm that D.V.M. reading has increased or decreased.

Table 29b

AFC Field Adjustment L152 (N–Board)

Input	Equipment	Test point	Adjustment component	Initial condition
RF Signal	D.V.M.	TPM13	L105	Use the Set–Up Menu to select TV/ANT mode.

Adjustment Procedures

1. Defeat AFC by inserting a jumper from A26 pin 4 to ground. (AFC OFF)
2. Check all active High Band channels 7~13 for AFC voltage range. Select channel with AFC voltage in approximate center of voltage range.
3. Connect the DVM to TPM13 and ground.
4. Adjust L105 for 2.5V (±0.05V) at TPM13.
5. Remove jumper inserted in Step 1. Check all active channels for proper AFC correction. Repeat steps 1–4 as necessary.

NOTE: Do not use CABLE channel with offset carriers for adjustment or in determination of low and high range of AFC voltage.

Table 29c

Video Level R115 (N–Board)

Input	Equipment	Test point	Adjustment component	Initial condition
Color bar (RF)	Oscilloscope	TPM12	R115	

Adjustment Procedures

1. Connect oscilloscope to TPM12. Use cold ground for scope connection. Set scope at horizontal time base.
2. Adjust R115 for 1 Vp–p (±0.1 V) from sync tip to white level. See Fig. 29a.

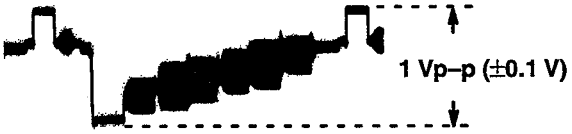


Fig. 29a

CAUTION: Do not adjust unless control has been replaced or adjusted incorrectly.

Service Sub Adjustments (Electronic Controls)

Sub Contrast
Serviceman Sub Adjustment (B3)

This adjustment is factory set. **Do not adjust** unless repairs are made to associated circuit, the CRT Board or the CRT has been replaced.

Table 30a

Input	**Equipment**	**Adjustment Parameters**
Black pattern	Oscilloscope.	Sub adjustment (B3) for TPWG1 Sub adjustment (C0) for TPWR1 Sub adjustment (C2) for TPWB1 R4169 for TPLG1
Test point	**Initial condition**	
TPWG1, R, B	In User Mode: Video: Picture:Max; Bright:center; Sharpness:Min; Color:Min; Video NR:OFF; AIC:OFF	
TPLG1	In Serviceman Sub adjustment: Black expansion gain (S1):00; white gamma (S2):00;	

Adjustment Procedures

1. Connect a oscilloscope probe to TPQ3 (+) and ground TPQ2. Adjust R1639 for a shading wave type of 0.7V p-p. (see figure 30a)
2. In the service mode for making electronic adjustment:
3. Check output waveform at TPWG1, then adjust Sub Adjustment (B2) for the black level to be 2.5V ±0.05V. (see figure 30b)
4. Check output waveform at TPWR1, then adjust Sub Adjustment (C0) for the black level to be 2.5V ±0.05V.
5. Check output waveform at TPWB1, then adjust Sub Adjustment (C2) for the black level to be 2.5V ±0.05V.
6. Apply color bar signal.
7. Switch to monochromatic by adjusting Sub Adjustment (V2) to 3 (picture should be red.)
8. Check output waveform at TPWG1 and adjust (B3) to be 3.2V ±0.1V between black and white level. (see figure 30c)
9. Set Sub Adjustment S1: to 4, S2: to 7 and V2: to 0.
10. Apply black level pattern.
11. Check Green cutoff level at TPLG1 and adjust R4169 to 200V ±2V. (see figure 30d)
12. Apply cross hatch pattern.
13. Adjust Sub Adjustment V3 to get 115V ±2V between black and white level at TPLG1. (see figure 30e)

Shading Wave Type

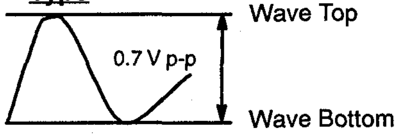


Fig. 30a

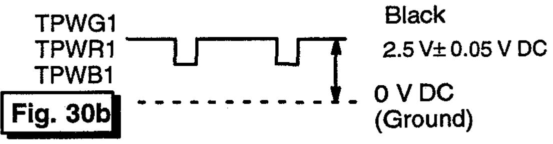


Fig. 30b

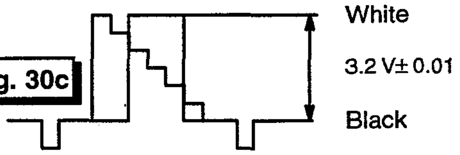


Fig. 30c

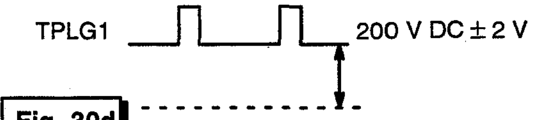


Fig. 30d

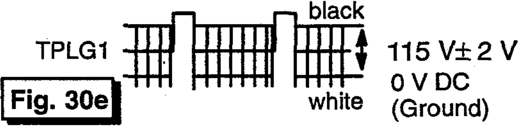


Fig. 30e

Sub Tint/Color Adjustment
Serviceman Sub Adjustment (B1) (B0)

Table 31b

Input	Equipment	Adjustment parameters
Rainbow Color bar	Oscilloscope	Sub adjustment (B0, B1)

Test point	Initial condition
TPWG1 TPWR1	Set scope horizontal time base to 20 µs (horizontal). Normalize the Video adjustments (Picture Icon Menu). In User Mode: Picture:Max; Bright:Center; Color:Center; Tint:Center; Auto Color:off; User Mode: AI: AI Picture:Off; Connect jumpers from TP1–6 to cold ground.

Adjustment Procedures

1. Adjust the Sub bright (C4) so that no saturation is seen on oscilloscope.
2. Adjust the Sub tint (B1) so that peak "2" observed at TPWR1 is located just half way between peaks "3" and "4". (Fig. 31a)
3. Adjust the Sub color (B0) so that amplitude "a" is 2.4 V peak–to–peak ±0.05 V at TPWR1. (Fig. 31a)
4. Adjust the Sub tint (B1) again so that peak "2", observed at TPWR1 is located just half way between peak "3" and "4". (Fig. 31a)
5. Adjust the Sub color (B0) so that amplitude "c" is 1.5 V peak–to–peak ±0.02 V at TPWG1. (Fig. 31b)
6. Remove the short jumpers.
7. Obtain any live signal. Check for proper tint (fleshtone) and color level. If not B0 and B1 can be slightly adjusted.

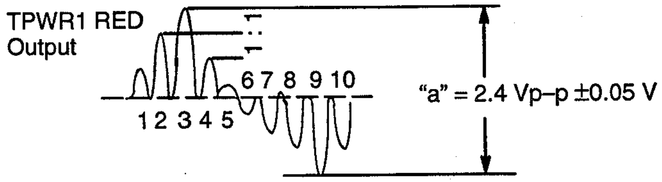


Fig. 32a

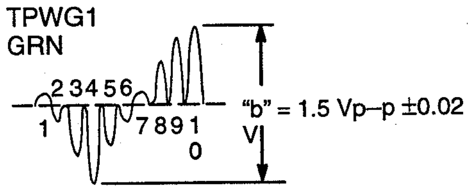


Fig. 32b

White balance

Serviceman Sub Adjustment (C0, C1, C2, C5, C6)

This adjustment is factory set. **Do not adjust** unless repairs are made to associated circuit, or when the CRT Board or the CRT are replaced.

NOTE: The pattern used in this procedure is an EIA color bar pattern with 87.5% modulation with 100% IRE white and 7.5% black. Correlate the information in this procedure to your pattern used. If not available, use adjustable Video level Signal generator.

Table 32a

Input	**Equipment**	**Adjustment parameters**
Color bar with color off	Oscilloscope. Dark area (Dark room)	Sub adjustment (C0) for Red Cutoff Sub adjustment (C2) for Blue Cutoff Sub adjustment (C5) for Red Drive Sub adjustment (C6) for Blue Drive
Test point	***Initial condition***	
Screen	Sub contrast should be adjusted before performing these procedures. In User Mode: Picture:Max; Bright:Center; Sharpness:Min.; Color:Min.; only–Auto Color:off; User Mode: AI: AI Picture:Off; In Serviceman Sub adjustment Mode: Black Expand (S1):00; White gamma level (S2):00; White:STD. Green Cutoff (C1):128; high light (C5, C6):128; Sub bright (B2):96; Screen VRs (R, G, B):Min.	

Adjustment Procedures

1. Connect a oscilloscope to (+) TPWG1 and (–) ground, Adjust sub adjustment (B2) sub bright to be 2.5 V ± 0.05 V at black level. (See figure 32a)
2. Connect scope to (+) TPWR1 and (–) ground, then, adjust sub adjustment (C0) Red cutoff (low light) to be 2.5 V ± 0.05 V.
3. Connect scope to (+) TPWB1 and (–) ground, then adjust sub adjustment (C2) Blue cutoff (low light) to be 2.5 V ± 0.05V.
4. Check Green cutoff level at TPLG1, then adjust R4169 (W-Board) to obtain 200 V ± 2 V. (See figure 32b)
5. Check Red cutoff level at TPLR1, then adjust R4178 (W-Board) to obtain 200 V ± 2V.
6. Check Blue cutoff level at TPLB1, then adjust R4168 (W-Board) to obtain 210 V ± 2 V.
7. Adjust screen VR R.G.B. (located on the focus pack, figure 32c) to make color just visible, confirm by looking at the CRT lenses.
8. Normalize the Picture Menu video controls and confirm good gray scale. Also ensure that Blue focus is set properly. If adjustments are necessary, adjust (C0) for Red and (C2) for Blue cutoff.
9. Select sub adjustments (C5) RED, (C6) BLU for bright portion and adjust for warm white in color bar pattern.
10. Adjust Serviceman Mode User Bright (C3) from low scale to high scale and check Black and White tracking.
11. Check the White Balance in both low and high light areas.
12. Reset sub-bright (B2) after white balance adjustment. Also reset sub adjustment (S1) to 4 and (S2) to 7.

Fig. 33a

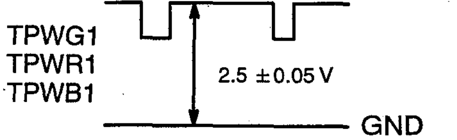


Fig. 33b

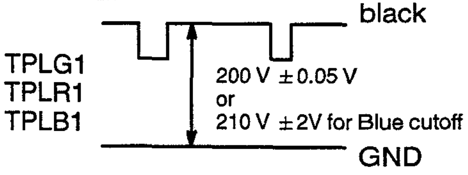
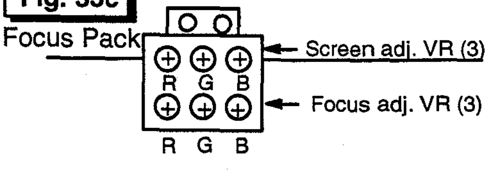


Fig. 33c



***NOTE:** Turn off the Sub Adjustment display while performing step 7.

Sub-Brightness
Serviceman Sub Adjustment (B2)

This adjustment is important for getting proper operation of customer brightness and picture controls. The adjustment must be made after Sub Contrast or Color Temperature adjustments are made. **Do not adjust** SCREEN after Sub-Brightness is set.

Table 33a

Input	**Equipment**	**Adjustment parameters**
Color bar with color off	DVM, Monoscope pattern generator	Sub Adjustment (B2) Sub Brightness AI (B6)
Test point	**Initial condition**	
TPQ4 TPQ5	Operate television for a minimum of 10 minutes prior to this adjustment. In User Mode: Picture controls max; Bright:center color min: Sharpness:Min; AI Picture:OFF White balance:STD	
Adjustment Procedures		
1. Connect a DVM to (+) TPQ4 and (–) TPQ5 ground. 2. In Serviceman Mode, select sub adjustment (B2) and adjust until the black bar starts to look grey. 3. Then adjust to the point where grey turns to black. 4. Select sub adjustment sub–bright AI (B6) and adjust until the black bar starts to look grey. 5. Then adjust to the point where grey turns to black. 6. Apply monoscope pattern. 7. Adjust bright control to max and confirm DVM indicates 17 ± 1V.		

Horizontal Centering Adjustment

Horizontal Centering Adjustment

Preparation

1. Normalize Picture Menu video.
2. Set the Receiver to Serviceman Adjustment mode.

Procedures

1. Apply monoscope pattern.
2. Adjust V2 of sub serviceman adjustment mode to 6 (or cover red and blue lenses with caps) projecting Green only.
3. Adjust horizontal amplitude D3 at approximately 20 in sub serviceman adjustment mode.
4. Adjust D4 of sub serviceman adjustment mode to place pattern at center of screen. The left scale and right scale should be equal.
5. Adjust horizontal amplitude with D3 so that the left scale and right scale show approximately 5 lines. (see figure 34a)
6. Adjust V2 of sub serviceman adjustment mode for 0 (or take caps from red and blue lens.)

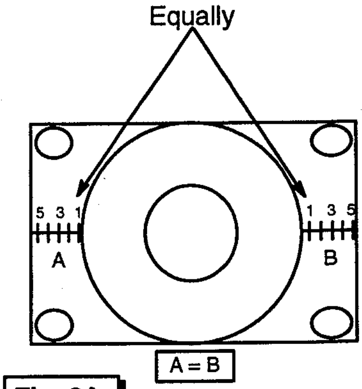


Fig. 34a

7. Exit the sub serviceman adjustment mode by pressing the power button on remote control.

Note: After adjusting horizontal centering, rough convergence alignment may be necessary.

Deflection Adjustment

D0 V-Height

Procedures

1. Apply monoscope pattern. Confirm following items. Vertical deflection to be able to adjust vertical width. Horizontal deflection for variable range of horizontal width and linearity, horizontal sync to be not narrow, horizontal sync not to be out by changing channel and check top curl.
2. Adjust focus pack VR for best focus.
3. Adjust H-width DAC:D3 for normal picture width.
4. Connect oscilloscope probe to R451 (TPQ6 side) and Gnd TPQ2 on Q-Board.
5. Adjust DAC:D0 V-size to be voltage value of 2.5 ±0.05 V

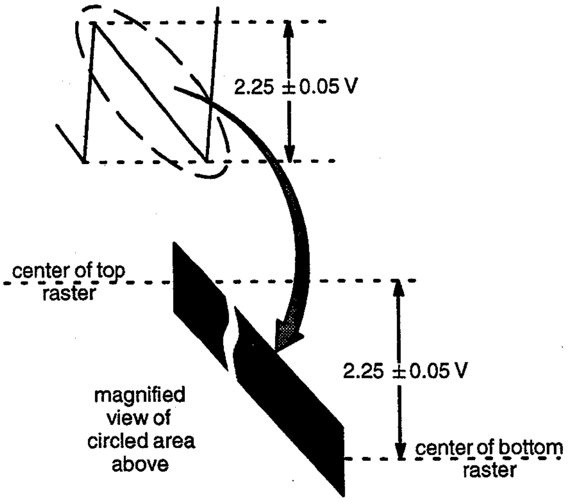


Fig. 34b

H-Phase and H-Position (D4)

Procedures

1. Apply monoscope pattern.
2. Cover the red and blue lens with caps projecting green raster only.
3. For horizontal amplitude adjust D3 of DAC: for 20.
4. Adjust D4 of DAC: to place pattern at center of screen (the left and right scale should be equal (A and B).

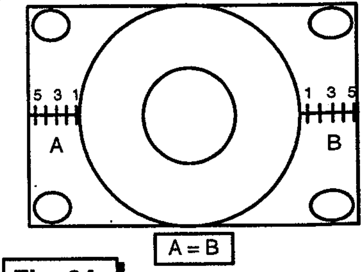


Fig. 34c

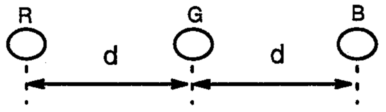
5. Remove caps from Red and Blue lens.
6. Press the power key to exit adjustment mode

Centering Magnets Adjustment

Procedures

1. Apply monoscope pattern.
2. In serviceman adjustment mode select DAC:V0 then press VOL left or right key to enter the static convergence menu. Adjust all horizontal and vertical RGB menus to be 0.
3. Select DAC V1 and adjust for 1.
4. Press "0" key, "Action" key, then "5" key on remote control.
5. Loosen the deflection coil screw on the Green CRT.
6. Adjust the Green monoscope pattern to be equal on left and right with the grid horizontal center line. Also adjust for horizontal and vertical tilt.

   Note: Push deflection coil to top of CRT neck, then tighten deflection screw after adjusting each CRT centering and Tilt.
7. Uncover the cap from the red lens to project red and green color.
8. Using the red deflection coil, adjust the red monoscope pattern center for "d" in mm left from the center of the green monoscope (see fig. 35a).



Model	d
PT–51G50	15 mm
PT–51G52	15 mm
PT–61G52	39 mm

Fig. 35a

9. Transfer the cap from blue to red, so blue and green will be projected.
10. Using the blue deflection coil adjust the blue monoscope pattern center to be d mm (see fig. 35a) Right from the center of the green monoscope.
11. Transfer lens cap to project green.
12. Press remote control TV/Video key 3 times to display the "OSD Pos ADJ" mode.
13. Adjust the "+" position of OSD to be a center of monoscope pattern by pressing "CH" keys or "VOL" keys on remote control.
14. Press "7" key on remote control then "Action" key.
15. Press "Power" key on remote control then "Action" key to exit Digital Convergence adjustment mode.

H-deflection Adjustment

	Default Value
D1 (V.LIN) Fixed	32
D2 (V.S) Fixed	32
D9 (V.EHT) Fixed	3
DA (H.EHT) Fixed	8
DB (V. DC) Fixed	32
D7 (EW Corner 2) Fixed	8
D8 (EW Corner 1) Fixed	8

Procedures

1. Apply monoscope pattern.
2. Cover red and blue lens and project green only.
3. Adjust DAC:V1 to 1 to enter convergence adjustment mode.
4. Copy all data from P1→P2 by pressing "8" key on Remote Control and select P-1 in COPY FROM screen.
5. Then press the "Action" key and select P-2 in "COPY TO" screen.
6. Press "Action" key, then copy from P-1 to P-2 will be completed.
7. Press the "9" key then "Action" key the adjustment of convergence is cleaned.
8. Press "7" key then "Action" key the data of convergence adjustment is memorize in memories (Store P-1).
9. Press the "Power" key then "Action" key to exit convergence adjustment mode.
10. Apply a self-generated cross hatch pattern.
11. Select D5 (pin cushion) then D6 (H-key) to adjust them respectively. Adjust the first vertical line left side and first line right from flame, to become parallel with a straight line.
12. Apply a monoscope pattern.
13. Adjust D3 (H-width) of DAC for the horizontal amplitude to become 5 lines average on right and left side of monoscope pattern.

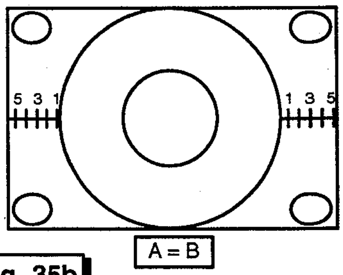


Fig. 35b

14. Press the "Power" key to select DAC V1 and adjust to 1, to enter convergence adjustment mode.
15. Press the "8" key and select P-2 on "Copy From" screen.
16. Press the "Action" key and select P-1 on "Copy To" screen, then press Action key to complete P-2 to P-1 data copy.
17. Press the "Power" key then "Action" key to exit the digital convergence mode.
18. Press "Power" key to exit DAC adjustment mode.
19. Remove caps from all lenses, then check the monoscope pattern on screen.

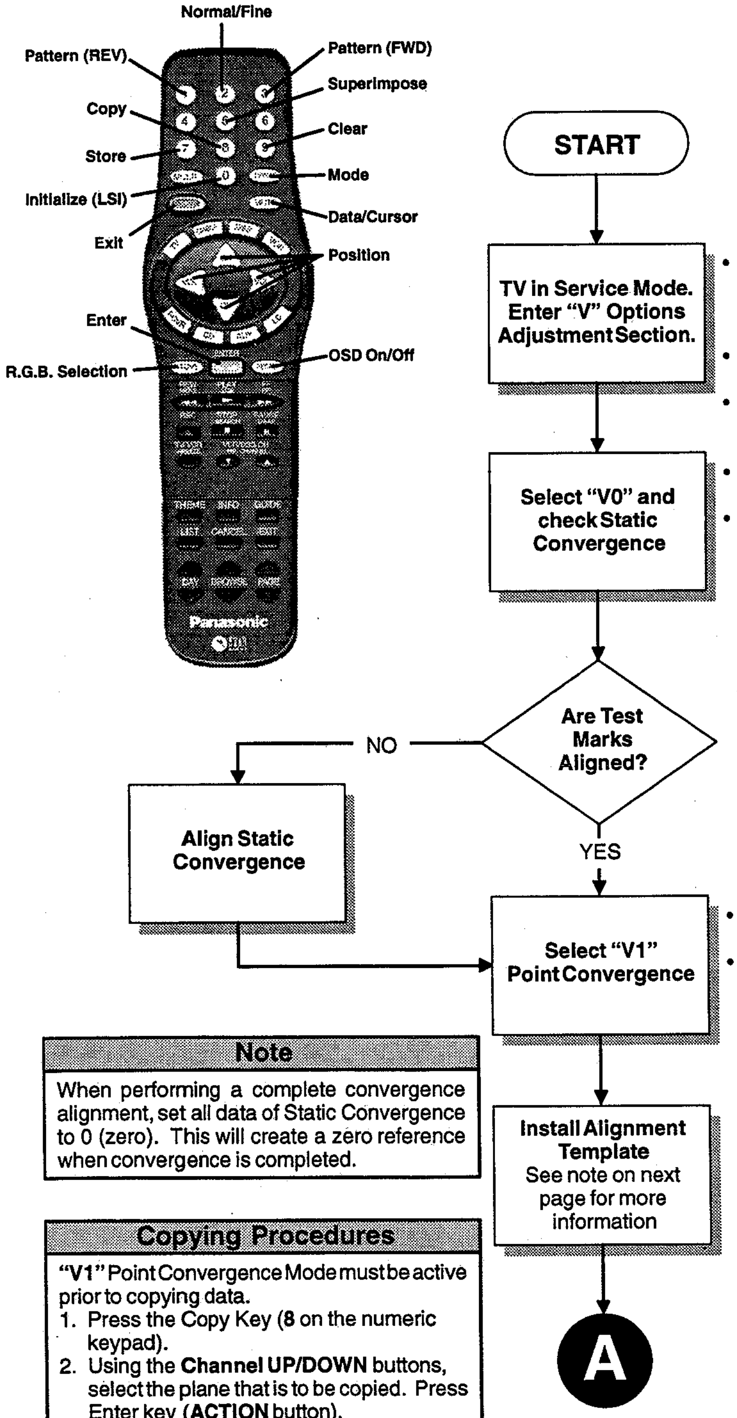
Digital Convergence

The following is a flowchart outlining the procedures for **Digital Convergence.** Use these procedures when replacing the following parts:

- **IC7110** (EEPROM in Digital Convergence Circuit, C–Board)
- **L551** (Pincushion Coil)
- any **CRT**
- any **High Voltage Producing Parts**
- any **Part that affects Convergence, when changed**

Note

If one or more of the rasters match the grid pattern on the **Convergence Alignment Template,** the misaligned rasters may be adjusted to merge with the good ones.


Normal/Fine
Pattern (REV)
Pattern (FWD)
Superimpose
Copy
Clear
Store
Mode
Initialize (LSI)
Data/Cursor
Exit
Position
Enter
OSD On/Off
R.G.B. Selection
Panasonic

Entering Service Mode

1. Select Cable Mode.
2. Set Sleep Timer to 30.
3. Select Channel 124.
4. Press Volume Down on TV.
5. Red "CHK" will appear in top left corner.
   - If more than 30 minutes are needed, the Sleep Timer can be disabled after entering Service Mode. Precautions should be observed to avoid damage to CRT's.

START
TV in Service Mode. Enter "V" Options Adjustment Section.
Select "V0" and check Static Convergence
Are Test Marks Aligned?
NO
YES
Align Static Convergence
Select "V1" Point Convergence
Install Alignment Template
See note on next page for more information
A

- **Note:** It may be necessary to inject a monoscope pattern into one of the ANT terminals to complete some of the procedures. Set TV to view test pattern before proceeding.
- Press **POWER** button on remote to cycle through Adjustment Options.
- Select **"V"** Options.

- If necessary, press **Channel UP/DOWN** on remote until **"V0"** is displayed.
- Press **Volume LEFT/RIGHT** on remote to enter "V0" **Static Convergence Mode.**

Static Convergence

1. Using the Channel UP/DOWN and Volume LEFT/RIGHT buttons, align the Green Horizontal and Vertical test marks with the Screen Frame mechanical reference marks.
2. Press ACTION button to cycle through options and exit Static Convergence Mode.

- Press **Channel UP/DOWN** on remote until **"V1"** is displayed.
- Press **Volume LEFT/RIGHT** on remote to enter "V1" **Point Convergence Mode.**

Note

When performing a complete convergence alignment, set all data of Static Convergence to 0 (zero). This will create a zero reference when convergence is completed.

Copying Procedures

"V1" Point Convergence Mode must be active prior to copying data.

1. Press the Copy Key (**8** on the numeric keypad).
2. Using the **Channel UP/DOWN** buttons, select the plane that is to be copied. Press Enter key (**ACTION** button).
3. Using the **Channel UP/DOWN** buttons, select the destination plane. Press Enter key (**ACTION** button).

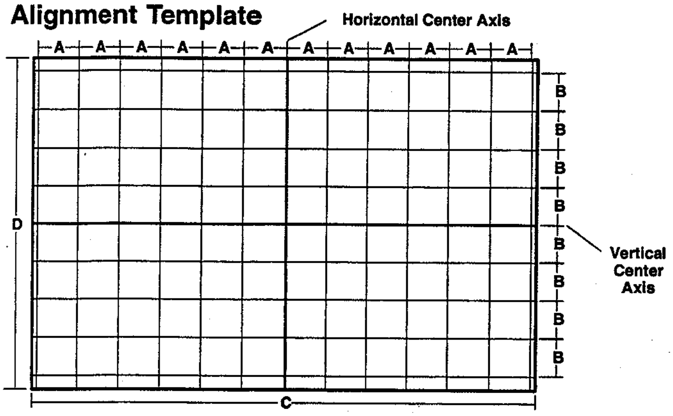
Helpful Hint

There are three "planes" or storage areas available when adjusting convergence: the Factory Default Plane (FACT), the Actual Plane (P–1), and the Test or Temporary Plane (P–2). **FACT** is the plane that contains the factory baseline and is **only used at the factory. P–1** is the plane that is always active. **P–2** is a storage bin that can be used to store data safely while P–1 is being adjusted. To copy data between the different planes proceed with the steps outlined in the **Copying Procedures.** It is advisable to copy good data from P–1 to P–2 at the start and occasionally during convergence, just in case P–1 gets corrupted during adjustment. Then P–2 can be copied into P–1 and alignment can continue with the uncorrupted data that was last stored.

Digital Convergence (cont.)

Convergence Alignment Template (for P2)

Alignment Template


Horizontal Center Axis
A
B
C
D
Vertical Center Axis

Block Dimensions
For 51" Models only
A = 85.5 mm
B = 93 mm
C = 1040 mm
D = 740 mm

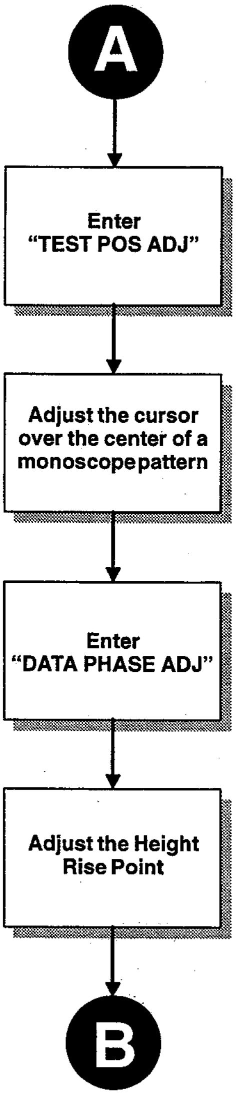
Align the Template's Horizontal and Vertical center lines with the TV's Mechanical Test Marks.

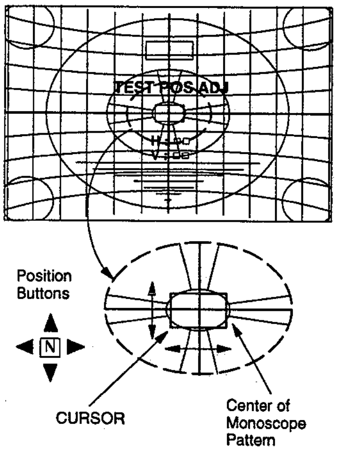
The **Convergence Alignment Template** is a grid approximately the size of the viewing screen used to ensure the proper size and shape of the alignment rasters. It is 12 blocks across by 8 blocks high. The grid dimensions will vary according to the size of the screen.

Apply a Convergence Alignment Template to the viewing screen of the TV. Make sure the center lines are properly aligned. If a template is not available, one can be created by following the instructions below.

Create a Convergence Alignment Template by drawing the pattern to the right in the actual dimensions on transparent film or tracing paper. Start with the Horizontal and Vertical Center Axis and work outwards until the pattern is complete. Pay close attention to the actual dimensions of the pattern.

A Convergence Alignment Template, Part No. TQD2AA19013, is available through Matsushita/Panasonic Services


A
Enter "TEST POS ADJ"
Adjust the cursor over the center of a monoscope pattern
Enter "DATA PHASE ADJ"
Adjust the Height Rise Point
B


TEST POS ADJ
Position Buttons
N
CURSOR
Center of Monoscope Pattern

Enter "TEST POS ADJ"

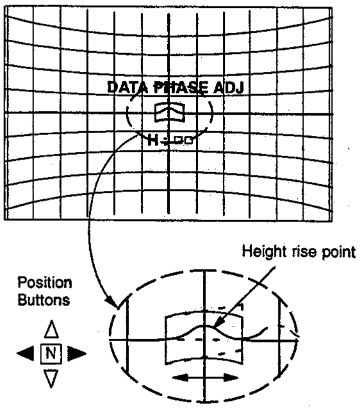
- Press Initialize (LSI) key (**0** button on remote) to enter **"TEST POS ADJ"** (Test Pattern Phase Adjustment).
- Press Enter Key (**ACTION** button on remote).

Adjust the cursor over the center of a monoscope pattern

- Press the Superimpose key (**5** on the remote) to view the injected monoscope pattern.
- Using the Position Keys (**Channel UP/DOWN** and **Volume LEFT/RIGHT**), center the cursor over the center of the monoscope pattern.

Enter "DATA PHASE ADJ"

- Press the Superimpose key (**5** on the remote) to stop displaying the monoscope pattern.
- Press Mode key (**TV/VIDEO** button on remote) to cycle through adjustment modes.
- Select **"DATA PHASE ADJ"** mode

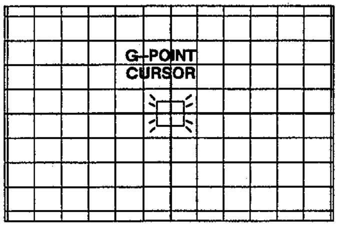

DATA PHASE ADJ
Height rise point
Position Buttons
N

Adjust the Height Rise Point

- Using the **Volume LEFT/RIGHT** buttons on remote, position the **Height Rise Point** of the screen center line to the middle of the cursor.
- Press Initialize (LSI) key (**0** button on remote) to exit.

Digital Convergence (cont.)

B


G-POINT
CURSOR

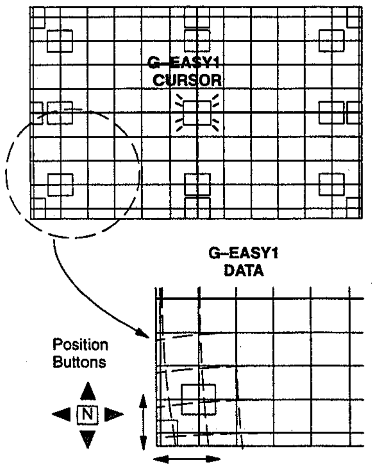
Grid lines, cursor, and text are green. Cursor is blinking.

Display Green Raster Pattern

- Press Pattern Keys (**1** or **3** on remote) to cycle through raster patterns (White, Green, Red, Yellow, Blue, and Cyan).
- Stop when the Green raster pattern is displayed.

Select G–EASY1

- Push Mode Key (**TV/VIDEO** button on remote) as needed to select G–EASY1.


G-EASY1
CURSOR
G-EASY1
DATA
Position
Buttons
N

– – – – Green crosshatch pattern

———— Convergence Adj. sheet lines

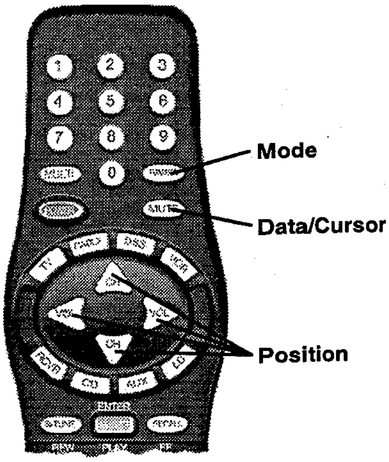
(Adjust points = 9 points)

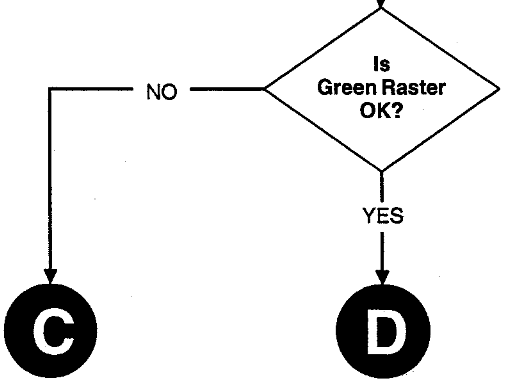
Helpful Hint

Using **EASY1**, then **EASY2** straighten lines first. Then adjust for good linearity. If any unique distortion is still visible, use **Point Convergence** to correct raster.

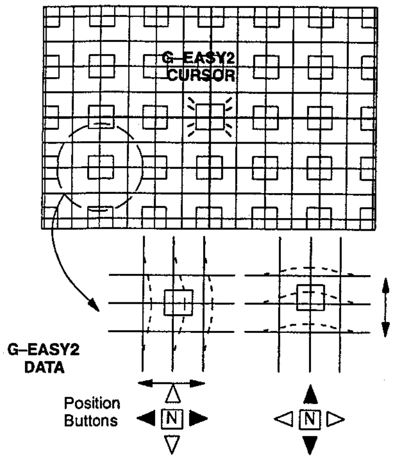
Adjust Green Raster using G–EASY1

- Move cursor to the desired area.
- Press Data/Cursor Key (**MUTE** button on remote). The cursor will stop blinking.
- Using the Position Keys (**Channel UP/DOWN** and **Volume LEFT/RIGHT**), adjust Green raster to correct shape.

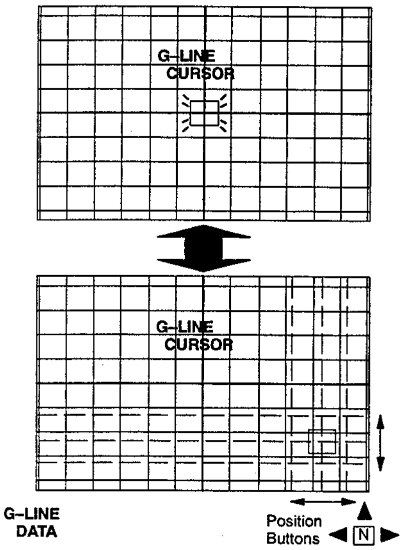

1
2
3
4
5
6
7
8
9
0
Mode
Data/Cursor
Position


Is
Green Raster
OK?
NO
YES
C
D

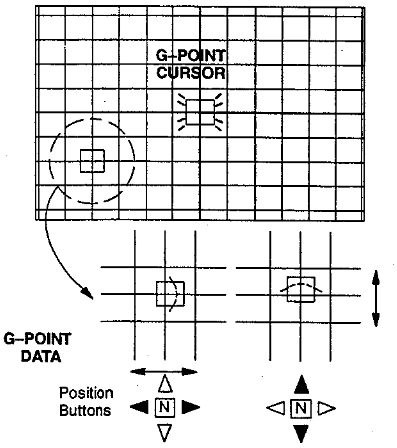
Digital Convergence (cont.)


G-EASY2
CURSOR
G-EASY2
DATA
Position
Buttons
N
N

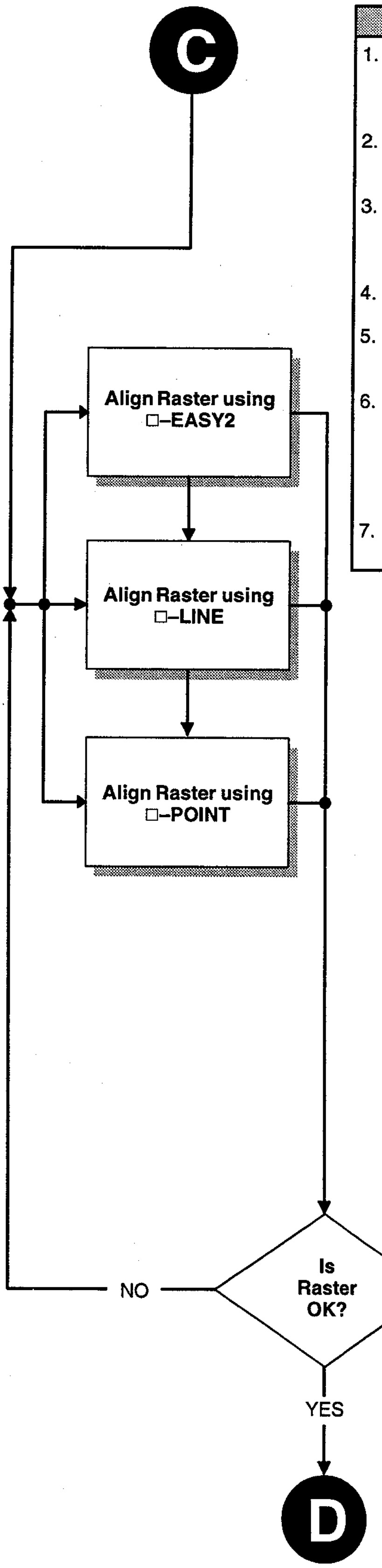
– – – – Green crosshatch pattern
———— Convergence Adj. panel lines
(Adjust points = 35 points)


G-LINE
CURSOR
G-LINE
CURSOR
G-LINE
DATA
Position
Buttons
N

– – – – Green crosshatch pattern
———— Convergence Adj. panel lines
(Adjust points = All cross points)


G-POINT
CURSOR
G-POINT
DATA
Position
Buttons
N
N

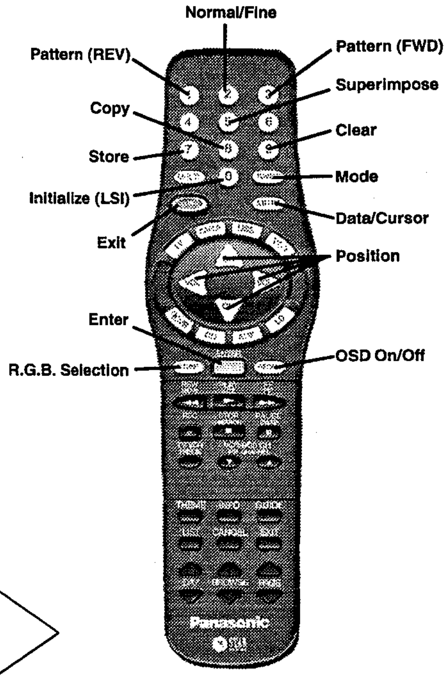
– – – – Green crosshatch pattern
———— Convergence Adj. panel lines
(Adjust points = All cross points)


C
Align Raster using
□–EASY2
Align Raster using
□–LINE
Align Raster using
□–POINT
NO
Is
Raster
OK?
YES
D

Point Convergence

1. Use Mode Key (**TV/VIDEO** button on remote) to cycle through adjustment modes: □–LINE, □–EASY1, □–EASY2, □–PERI–, □–POINT.
2. Use the Position Keys (**Channel UP/DOWN** and **Volume LEFT/RIGHT**) to move the cursor to the desired area.
3. Push Data/Cursor Key (**Mute** button) to select Data Mode. The cursor will stop flashing. This indicates that the system is ready to adjust.
4. Use Position Keys to adjust the selected area.
5. Push Data/Cursor key to select Cursor Mode. Repeat steps 2 through 5 as needed to ensure good shape and linearity.
6. Use any combination of adjustment modes to complete convergence, **except EASY1**. Returning and using EASY1 after other adjustments will cause a loss of the data accumulated using the other modes, since EASY1 affects large areas at a time.
7. **Store Data often,** using the Store Key (**7** on remote) and Enter Key (**ACTION** button).

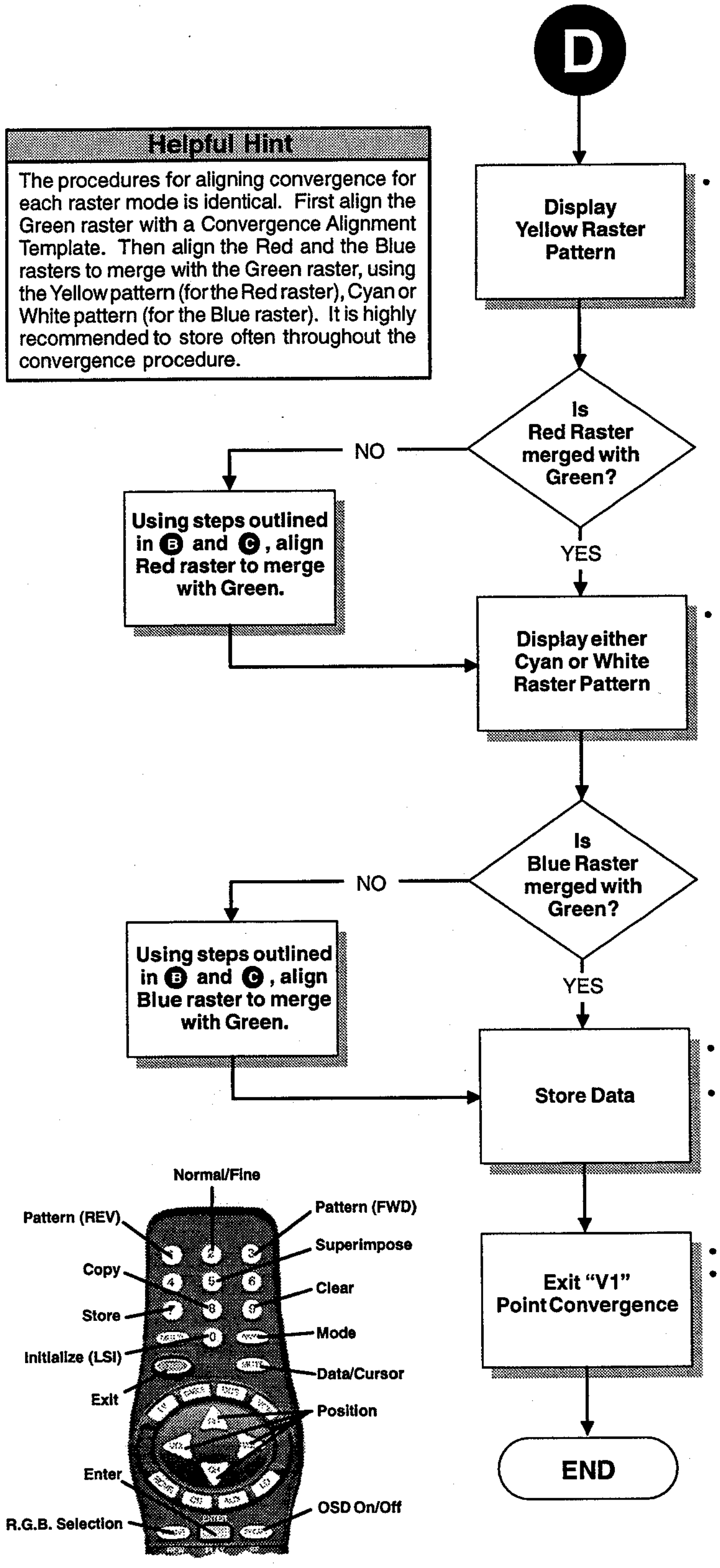
□ = **R** (RED), **G** (GREEN), or **B** (BLUE).


Normal/Fine
Pattern (REV)
Pattern (FWD)
Superimpose
Copy
Clear
Store
Mode
Initialize (LSI)
Data/Cursor
Exit
Position
Enter
R.G.B. Selection
OSD On/Off
Panasonic

Digital Convergence (cont.)

Helpful Hint

The procedures for aligning convergence for each raster mode is identical. First align the Green raster with a Convergence Alignment Template. Then align the Red and the Blue rasters to merge with the Green raster, using the Yellow pattern (for the Red raster), Cyan or White pattern (for the Blue raster). It is highly recommended to store often throughout the convergence procedure.


D
Display Yellow Raster Pattern
Is Red Raster merged with Green?
NO
Using steps outlined in B and C, align Red raster to merge with Green.
YES
Display either Cyan or White Raster Pattern
Is Blue Raster merged with Green?
NO
Using steps outlined in B and C, align Blue raster to merge with Green.
YES
Store Data
Exit "V1" Point Convergence
END
Normal/Fine
Pattern (REV)
Pattern (FWD)
Superimpose
Copy
Clear
Store
Mode
Initialize (LSI)
Data/Cursor
Exit
Position
Enter
OSD On/Off
R.G.B. Selection

- Press Pattern Keys (**1** or **3** on remote) as needed to display **Yellow (Red + Green)** raster pattern.

- Press Pattern Keys (**1** or **3** on remote) as needed to display either the **Cyan (Blue + Green)** or the **White (Red + Green + Blue)** raster pattern.

- Press Store Key (**7** button on remote) to save data in P–1.
- Press Enter Key (**ACTION** button on remote)

- Press Exit Key (**POWER** button on remote)
- Press Enter Key (**ACTION** button on remote)

Reminder

When completed, if no other alignments are necessary, **exit the Service Mode.**

- Press and hold **ACTION** and **POWER** buttons together until the screen blanks.
- The TV should reset itself and and turn itself back on in a few seconds.
- Adjust TV for normal viewing.

Notes

Serviceman Mode (Electronic Control)
Service Adjustment Values

Model ____________________ Ser # ______________ Date ______________

Note: Record the original settings PRIOR to modifying the registers.

Mode	Service Adjustment	Adjustment Range	Def Val.	Original Value	New Value
Sub Adjustments					
B0	Sub Color	0 ~ 63	32		
B1	Sub Tint	0 ~ 63	32		
B2	Sub Brightness	0 ~ 192	96		
B3	Sub Contrast	0 ~ 63	32		
B4	RF AGC	0 ~ 127	32		
B5	SubBrightness for AI	0 ~ 192	96		
White Balance Adjustments					
C0	RED Cutoff (Low Light)	0 ~ 3 – first position 0 ~ 235 – second position *	2 20		
C1	GRN Cutoff (Low Light)	0 ~ 255	128		
C2	BLU Cutoff (Low Light)	0 ~ 3 – first position 0 ~ 235 – second position *	2 20		
C3	User Bright	0 ~ 63	31		
C4	Sub Bright	0 ~ 192	46		
C5	RED Drive (Highlight)	0 ~ 255	128		
C6	BLU Drive (Highlight)	0 ~ 255	128		
C7	RED Drive (Cool)	0 ~ 63	12		
C8	BLU Drive Offset (Cool)	0 ~ 63	12		
C9	RED Drive Offset (Warm)	0 ~ 63	20		
CA	BLU Drive Offset (Warm)	0 ~ 63	12		
Pincushion Adjustments					
D0	Vertical Size	0 ~ 127	64		
D1	Vertical Linearity	0 ~ 63	**32		
D2	Vertical S Correct	0 ~ 63	**32		
D3	Horizontal Size	0 ~ 63	50		
D4	Horizontal Centering	0 ~ 31	16		
D5	E–W Parabola	0 ~ 63	31		
D6	Vertical Keystone	0 ~ 63	33		
D7	E–W Top Corner	0 ~ 15	**8		
D8	E–W Bottom Corner	0 ~ 15	**8		
D9	EHT Vertical Compression	0 ~ 15	**3		
DA	EHT Horizontal Compression	0 ~ 15	**8		
DB	Vertical DC	0 ~ 63	**32		

***Adjustment indicated in steps:**
0 20 ~ 0 235
1 00 ~ 1 235
2 00 ~ 2 235
3 00 ~ 3 235

**** Factory Adjustment Only**

Serviceman Mode (Electronic Control)
Factory Adjustment Values

Model ______________________ Ser # ______________ Date ______________

Note: Record the original settings PRIOR to modifying the registers.

Mode	Service Adjustment	Adjustment Range	Def. Val.	Original Value	New Value
Options Adjustments					
S0	Pre & Overshoot	0 ~ 7	3		
S1	Black Expansion	0 ~ 15	4		
S2	White Gamma Level	0 ~ 15	7		
S3	White Gamma Gain	0 ~ 15	15		
S4	Small Gamma Level	0 ~ 15	7		
S5	R-Y Demod, Axis (Angle)	0 ~ 31	7		
S6	R-Y Demod, Axis (Gain)	0 ~ 63	23		
S7	G–Y Ratio SW	0 ~ 3	1		
S8	White Letter Correction	0 ~ 15	0		
S9	White Letter Slice Volt.	0 ~ 15	5		
SA	Switches (TV)	0 ~ 255	36		
SB	Switches	0 ~ 255	8		
SC	Switches of Video	0 ~ 255	36		
SD	Slope of Contrast	0 ~ 255	109		
SE	Input Level	0 ~ 63	32		
SF	Stereo PLL VCO	0 ~ 63	32		
S10	Filter	0 ~ 63	32		
S11	Low Freq. Separation	0 ~ 63	32		
S12	High Freq. Separation	0 ~ 63	32		
S13	Clock Adjustment	0 ~ 255	128		
S14	Scroll Output, Font Mode	0 ~ 2	1		
S15	Output Position Mode	0 ~ 2	0		
S16	PIP Color Adjust	0 ~ 127	23		

Mode	Service Adjustment	Adjustment Range	Def. Val.	Original Value	New Value
Options Adjustments					
S17	Color Reset (Tint)	0 ~ 127	54		
S18	PIP Frame & Bkgnd.	0 ~ 7	4		
S19	PIP Vertical Position (1/9 Top)	0 ~ 255	234		
S1A	PIP Vertical Position (1/9 Bottom)	0 ~ 255	106		
S1B	PIP Horizontal Position (1/9 Left)	0 ~ 255	27		
S1C	PIP Horizontal Position (1/9 Right)	0 ~ 255	129		
S1D	PIP Vertical Position (1/16 Upper)	0 ~ 255	234		
S1E	PIP Vertical Position (1/16 Lower)	0 ~ 255	88		
S1F	PIP Horizontal Position (1/16 Left)	0 ~ 255	26		
S20	PIP Position 1/16 Right	0 ~ 255	141		
S21	V1 Gain	0 ~ 15	8		
S22	S–AI Sound Music	0 ~ 255	30		
S23	S–AI Sound Vocal	0 ~ 255	60		
S24	No AI Off	0 ~ 255	240		
S25	A1 Sound Upset	0 ~ 15	2		
S26	A1 Sound Downstep	0 ~ 15	4		
S27	Sound Auto Bass Max	0 ~ 63	50		
S28	Sound Auto Treble Max	0 ~ 65	55		
S29	Cut–off Offset R	0 ~ 40	20		
S2A	Cut–off Offset B	0 ~ 40	20		

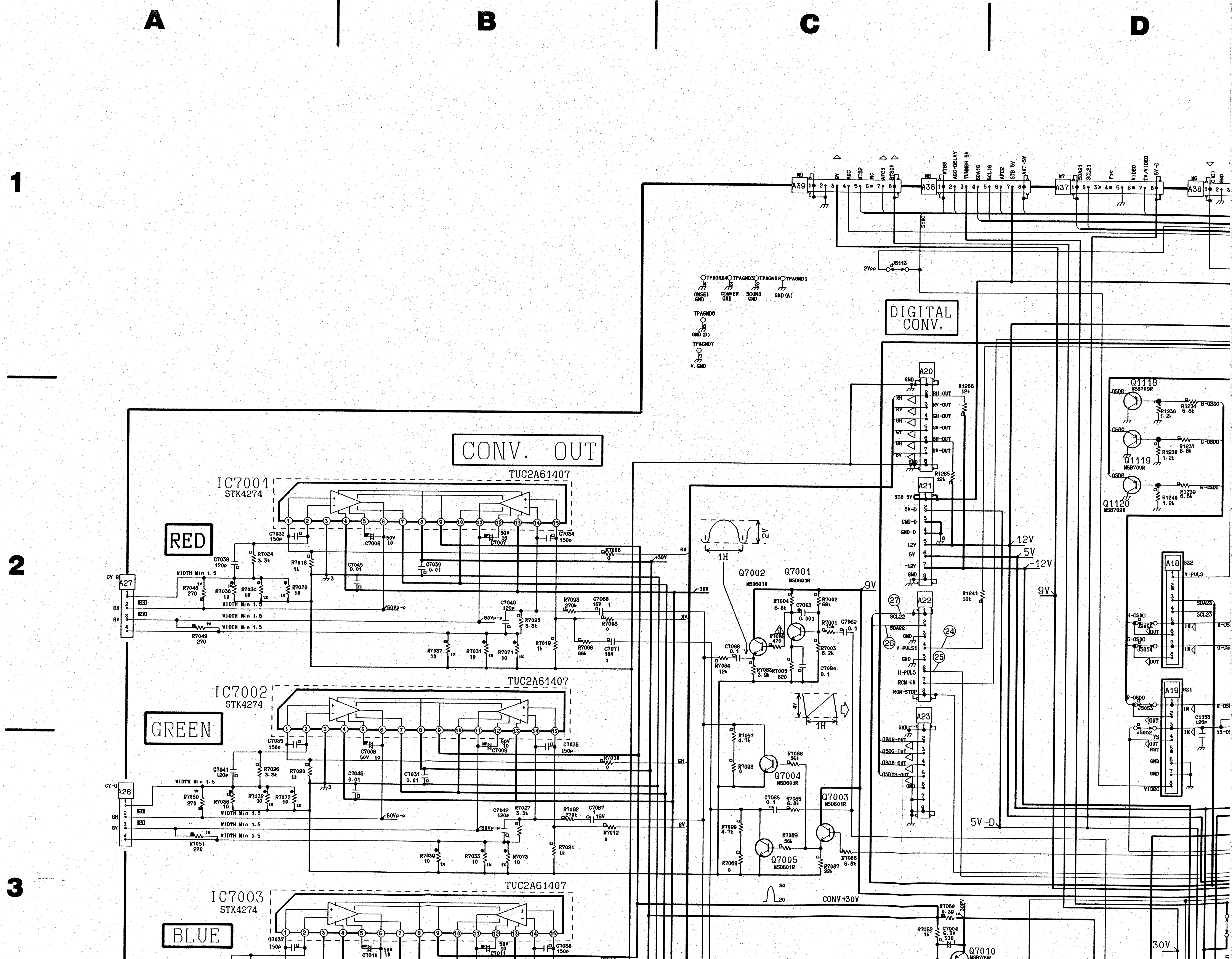
Serviceman Mode (Electronic Control)
Factory Adjustment Values (cont.)

Model ______________________________ Ser # ______________ Date ______________

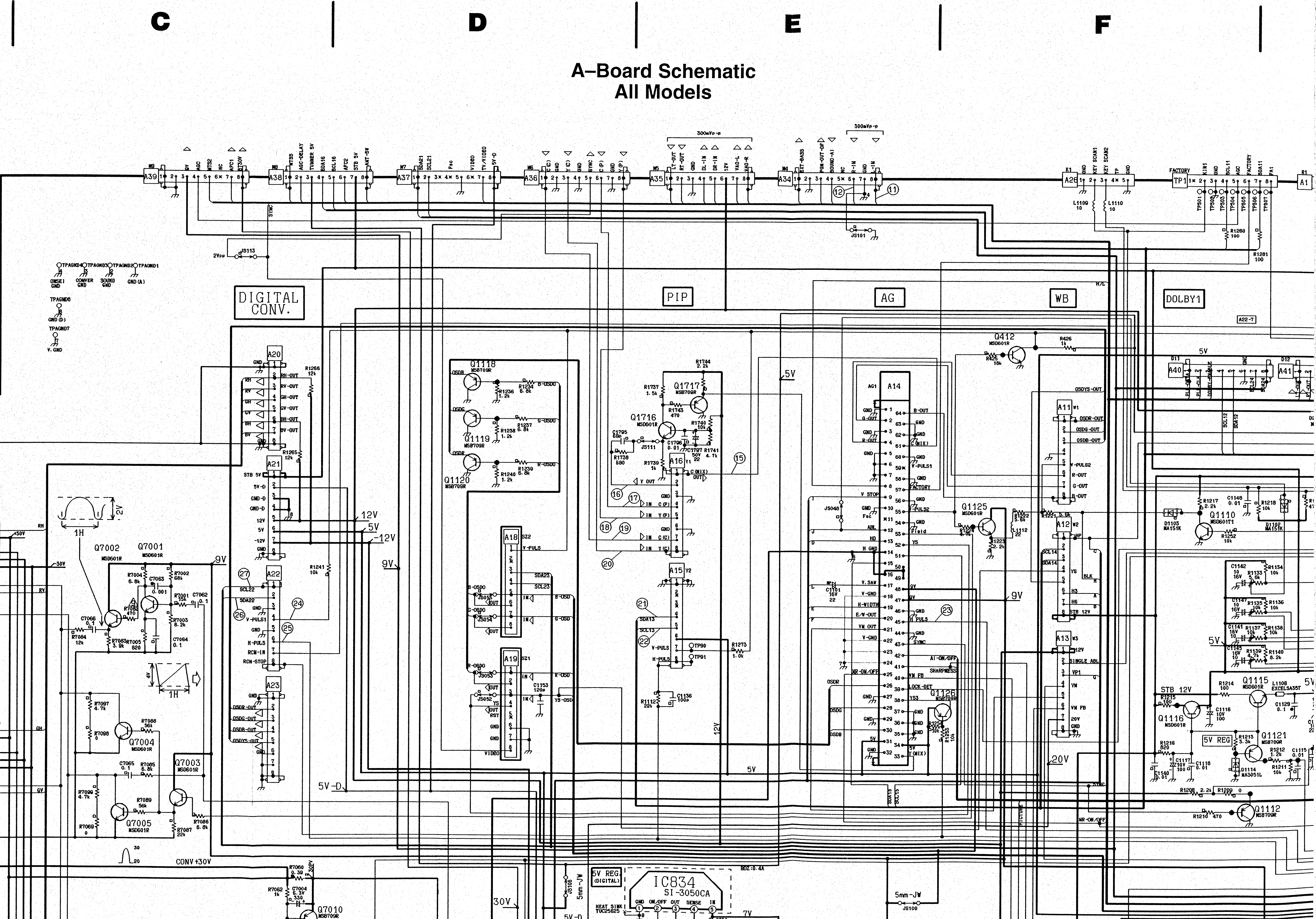
Note: Record the original settings PRIOR to modifying the registers.

Mode	Service Adjustment	Adjustment Range	Def Val.	Original Value	New Value
Options Adjustments					
V0	Static Convergence	–	*0		
V1	Digital Convergence	–	*0		
V2	Color SW	0~6	*0		
V3	G Gain	0~195	75		
V4	DC Level	0~12	5		
V5	Blue Gamma Knee Point 1	0~55	10		
V6	Blue Gamma Gain	0~95	35		
V7	Blue Gamma Knee Point 2	0~165	15		
V8	ABL Step	0~255	1		
V9	ABL	0~255	255		
VA	ABL Low Level Threshold	0~15	55		
VB	ABL Input Level Display	–	–		
VC	3D/YC Y Delay (TV)	0~15	6		
VD	3D/YC Y Delay (Video)	0~15	0		

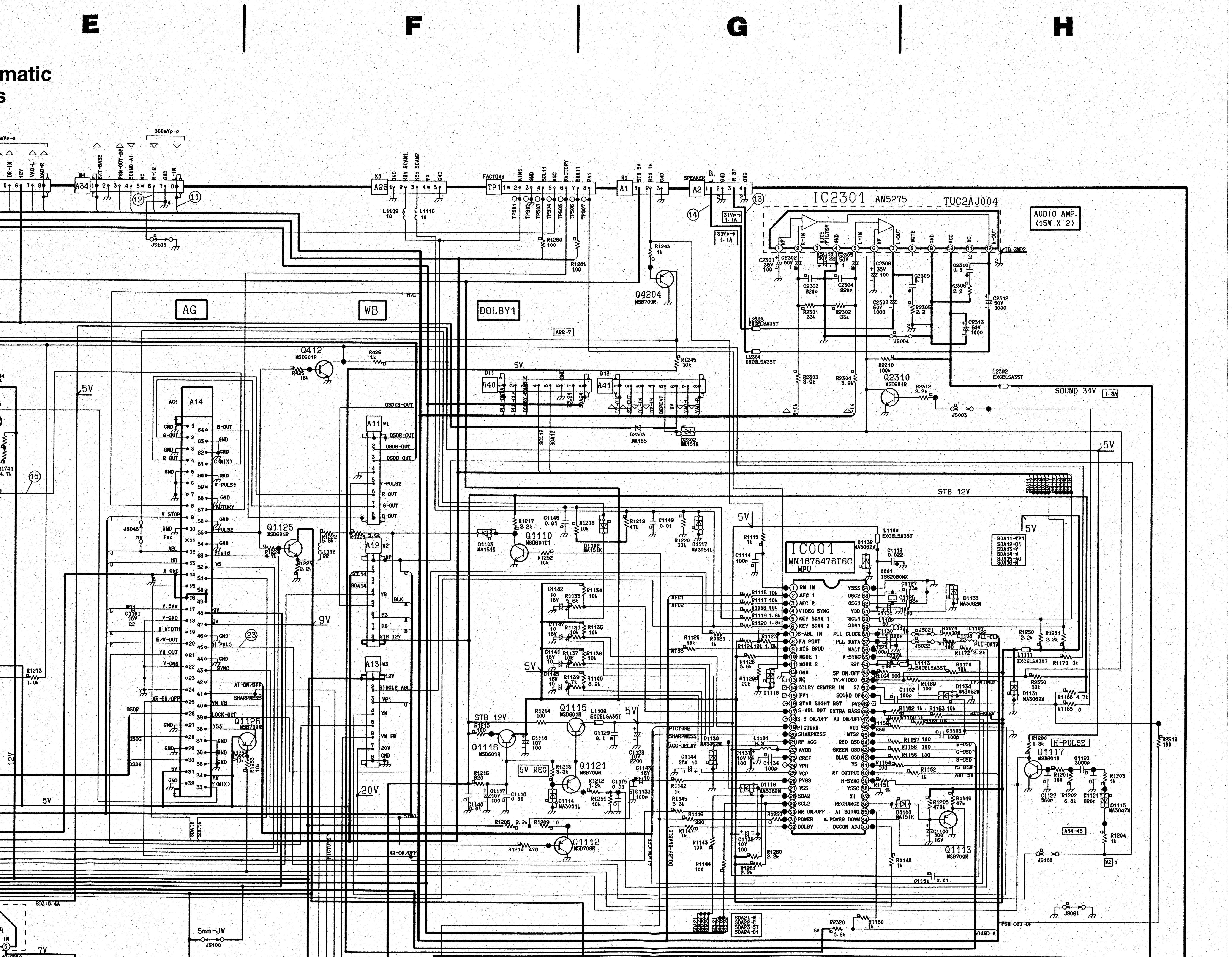
* Service Adjustment


A
B
C
D
1
2
3
CONV. OUT
DIGITAL CONV.
RED
GREEN
BLUE
IC7001
STK4274
IC7002
STK4274
IC7003
STK4274
TUC2A61407
Q7001
Q7002
Q7003
Q7004
Q7005
Q7010
MSD601R
Q1118
Q1119
Q1120
MSB709R
A20
A21
A22
A23
A27
A28
A18
A19
A36
A37
A38
A39
CY-R
CY-G
RH
RV
GH
GV
WIDTH Min 1.5
60Vp-p
+30V
-30V
9V
12V
5V
-12V
5V-D
30V
CONV +30V
2Vpp
1H
2V
4V
TPAGND4
TPAGND3
TPAGND2
TPAGND1
ONSEI GND
CONVER GND
SOUND GND
GND (A)
TPAGND6
GND (D)
TPAGND7
V. GND
RH-OUT
RV-OUT
GH-OUT
GV-OUT
BH-OUT
BV-OUT
STB 5V
5V-D
GND-D
SCL22
SDA22
V-PULS1
H-PULS
RCN-IN
RCN-STOP
OSDR-OUT
OSDG-OUT
OSDB-OUT
OSDYS-OUT
B-OSDO
G-OSDO
R-OSDO
VIDEO
SDA23
SCL23
V-PULS
AGC-DELAY
TUNNER 5V
SDA16
SCL16
AFC2
ANT-5V
SDA21
SCL21
Fsc
TV/VIDEO
SYNC
JS113
5703C1

A–Board Schematic
All Models


C
D
E
F
DIGITAL CONV.
PIP
AG
WB
DOLBY1
A39
A38
A37
A36
A35
A34
A26
TP1
A1
A20
A21
A22
A23
A18
A19
A16
A15
A14
A11
A12
A13
A40
A41
Q1118 MSB709R
Q1119 MSB709R
Q1120 MSB709R
Q1716 MSD601R
Q1717 MSB709R
Q412 MSD601R
Q1125 MSD601R
Q1126 MSB709R
Q1110 MSD601T1
Q1115 MSD601R
Q1116 MSD601R
Q1121 MSB709R
Q1112 MSB709R
Q7001 MSD601R
Q7002 MSD601R
Q7003 MSD601R
Q7004 MSD601R
Q7005 MSD601R
Q7010 MSB709R
IC834 SI-3050CA
5V REG (DIGITAL)
5V REG
HEAT SINK TUC25825
300mVp-p
CONV +30V
STB 12V
12V
5V
-12V
9V
20V
30V
5V-D
1H
2V
4V
TPAGND1
TPAGND2
TPAGND3
TPAGND4
TPAGND6
TPAGND7
JS113
JS101
JS100
A22-7
5mm-JW

matic
s

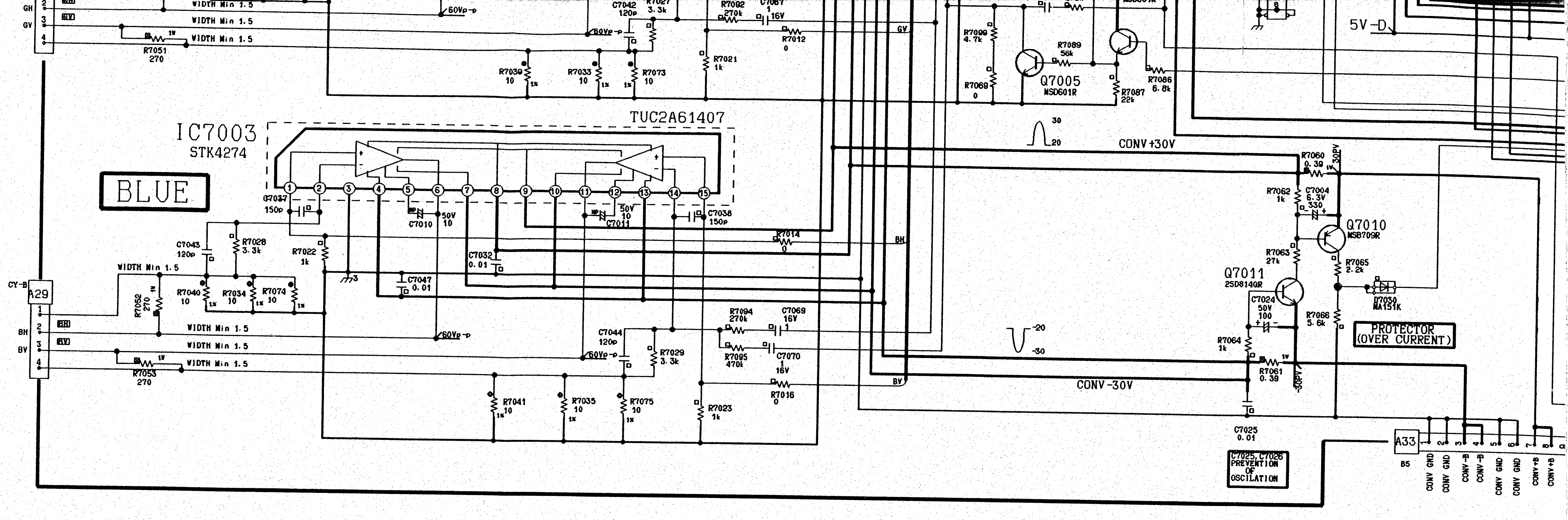

E
F
G
H
IC2301 AN5275
TUC2AJ004
AUDIO AMP. (15W X 2)
IC001
MN1876476T6C
MPU
AG
WB
DOLBY1
A14
A11
A12
A13
A34
A26
TP1
A1
A2
A40
A41
Q412
Q1125
Q1126
Q1110
Q1115
Q1116
Q1121
Q1112
Q1113
Q1117
Q2310
Q4204
5V REG
H-PULSE
SOUND 34V
STB 12V
5V
9V
20V
12V
5mm-JW
SPEAKER
FACTORY
A22-7
A14-45
SDA21-M SDA22-C SDA23-ST SDA24-B1
SDA11-TP1 SDA12-D1 SDA13-Y SDA14-W SDA15-AG SDA16-M
300mVp-p
31Vp-p 1.1A

A Board Schematic
Waveforms, Voltages & Notes
All Models
PT–51G50U/CU/LU/PU/TU PT–51G52V/CV/LV/PV/TV/XV PT–61G52V/CV

Sheet 1 of 6
Side A

MTC9705703C1

3



IC7003
STK4274
TUC2A61407
BLUE
WIDTH Min 1.5
R7051 270
R7053 270
C7042 120p
R7027 3.3k
R7092 270k
C7067 1 16V
R7012 0
R7021 1k
R7039 10
R7033 10
R7073 10
R7099 4.7k
R7089 56k
R7069 0
Q7005 MSD601R
R7087 22k
R7086 6.8k
5V-D
GH
GV
CY-B
A29
BH
BV
C7037 150p
C7043 120p
R7028 3.3k
R7022 1k
C7010 10
50V 10 C7011
C7038 150p
R7014 0
C7032 0.01
C7047 0.01
R7040 10
R7034 10
R7074 10
R7052 270
60Vp-p
C7044 120p
R7029 3.3k
R7094 270k
C7069 16V
R7095 470k
C7070 1 16V
R7016 0
R7041 10
R7035 10
R7075 10
R7023 1k
CONV+30V
CONV-30V
R7060 0.39
C7004 6.3V 330
R7062 1k
Q7010 MSB709R
R7063 27k
R7065 8.2k
Q7011 2SD1140R
C7024 50V 100
R7066 5.6k
D7050 MA151K
PROTECTOR (OVER CURRENT)
R7064 1k
R7061 0.39
C7025 0.01
C7025, C7026 PREVENTION OF OSCILATION
A33
B5
CONV GND
CONV-B
CONV+B

4

A–Board Voltage Measurements

IC001

01	5.10	33	4.90
02	2.70	34	5.20
03	4.50	35	0.00
04	3.40	36	5.20
05	5.30	37	0.00
06	1.00	38	0.00
07	2.20	39	3.70
08	5.20	40	5.00
09	1.50	41	0.00
10	5.30	42	0.00
11	2.80	43	0.00
12	0.00	44	0.00
13	2.60	45	0.00
14	0.00	46	0.00
15	0.00	47	0.00
16	5.10	48	0.00
17	5.20	49	0.00
18	5.10	50	0.30
19	5.30	51	0.10
20	1.90	52	0.10
21	2.30	53	6.10
22	5.20	54	5.10
23	0.00	55	4.70
24	1.30	56	5.20
25	1.10	57	5.20
26	1.90	58	5.20
27	0.00	59	4.90
28	4.80	60	4.90
29	4.90	61	5.20
30	5.20	62	0.00
31	5.00	63	2.40
32	5.10	64	0.00

IC7001		IC7002		IC7003		IC2301	
01	1.30	01	–0.30	01	0.80	01	1.00
02	1.30	02	–0.20	02	0.80	02	0.00
03	0.10	03	0.00	03	0.00	03	35.90
04	–18.80	04	–18.80	04	–18.80	04	0.00
05	–13.50	05	–13.00	05	12.50	05	0.00
06	1.60	06	–0.30	06	1.00	06	1.00
07	–18.80	07	–18.80	07	–18.80	07	17.80
08	19.10	08	19.10	08	19.10	08	6.20
09	19.10	09	19.10	09	19.10	09	0.00
10	–18.70	10	–18.80	10	18.80	10	36.50
11	0.00	11	–0.10	11	0.00	11	0.00
12	–12.90	12	–12.90	12	–12.90	12	17.80
13	–18.80	13	–18.90	13	–18.80		
14	0.00	14	–0.10	14	0.00		
15	0.00	15	0.00	15	0.00		

IC833		IC834		IC835	
01	11.90	01	0.00	01	–0.10
02	0.00	02	4.30	02	4.30
03	8.90	03	4.90	03	4.90
		04	4.90	04	4.90
		05	6.20	05	6.20

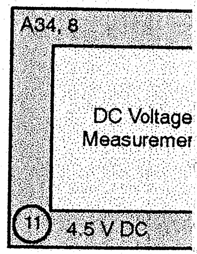
5
A1

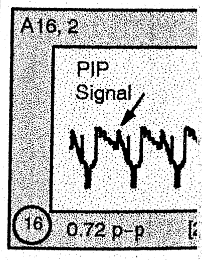
IMPORTANT SAFETY NOTICE
THIS SCHEMATIC DIAGRAM INCORPORATES SPECIAL FEATURES THAT ARE IMPORTANT FOR PROTECTION FROM X–RADIATION, FIRE AND ELECTRICAL SHOCK HAZARDS. WHEN SERVICING IT IS ESSENTIAL THAT ONLY MANUFACTURERS SPECIFIED PARTS BE USED FOR THE CRITICAL COMPONENTS DESIGNATED WITH A ⚠ IN THE SCHEMATIC.

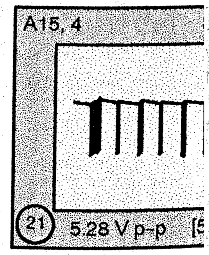
A–Board Transistors

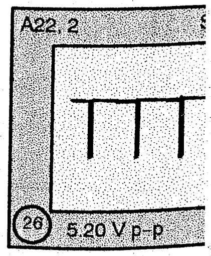
	B	C	E
Q1110	0.60	0.00	0.00
Q1112	2.20	0.00	2.80
Q1113	5.30	5.10	5.10
Q1115	5.80	10.00	5.20
Q1116	5.80	12.80	5.20
Q1117	–0.80	3.60	0.00
Q1118	0.00	–0.10	0.70
Q1119	0.00	0.00	0.60
Q1120	0.00	0.00	0.60
Q1121	5.00	5.90	5.80
Q1125	0.10	8.90	0.10
Q1126	4.80	0.10	4.80
Q1716	3.70	4.40	3.10
Q1717	4.30	0.00	5.00

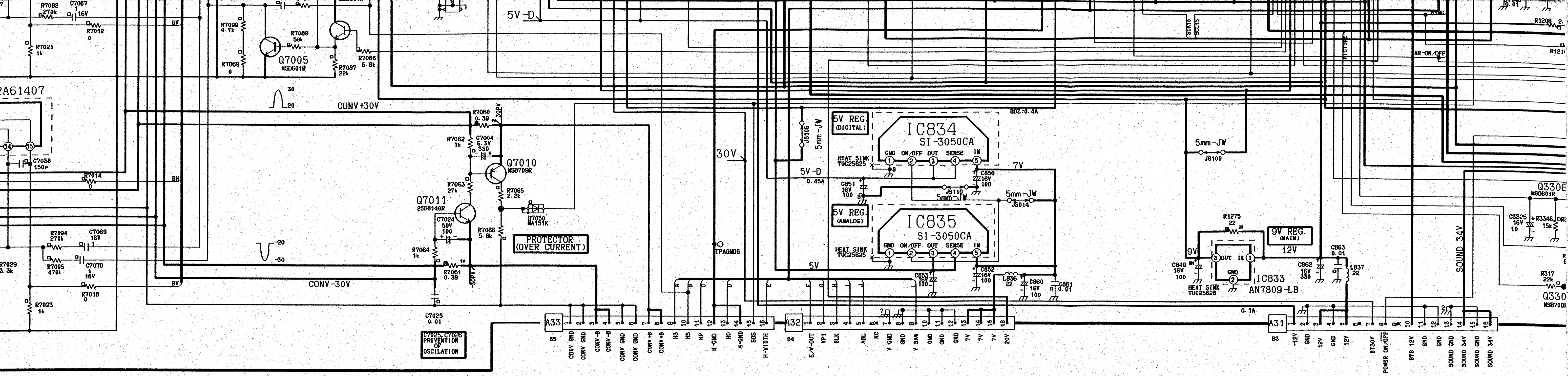
	B	C	E
Q2310	0.30	6.20	0.00
Q3306	0.20	3.90	0.00
Q3309	5.30	0.00	5.90
Q3310	2.20	0.00	2.90
Q412	0.00	4.70	0.00
Q4204	5.10	0.00	5.00
Q7001	0.80	6.00	0.40
Q7002	6.00	8.90	5.40
Q7003	2.00	8.80	1.70
Q7004	0.10	–0.10	0.00
Q7005	0.10	–0.10	0.00
Q7010	19.10	0.00	19.40
Q7011	–18.80	19.10	–19.10










R7092 270k
C7067 1 16V
R7012 0
R7021 1k
GV
R7090 4.7k
R7089 56k
Q7005 MSD601R
R7086 6.8k
R7087 22k
R7069 0
2A61407
CONV +30V
5V-D
R7060 0.39 1W
30PV
R7062 1k
C7004 6.3V 330
Q7010 MSB709R
R7063 27k
R7065 2.2k
Q7011 2SD814QR
C7024 50V 100
D7050 MA151K
R7066 5.6k
PROTECTOR (OVER CURRENT)
R7064 1k
R7061 0.39 1W
C7025 0.01
C7025, C7026 PREVENTION OF OSCILATION
C7038 150p
R7014 0
BH
R7094 270k
C7069 16V 1
R7029 3.3k
R7095 470k
C7070 1 16V
R7016 0
BV
R7023 1k
CONV -30V
30V
J5106 5mm-JW
5V REG. (DIGITAL)
IC834 SI-3050CA
HEAT SINK TUC25625
GND ON/OFF OUT SENSE IN
BDZ:0.4A
7V
5V-D 0.45A
C851 16V 100
C850 16V 100
J5110 5mm-JW
5mm-JW J5014
5V REG. (ANALOG)
IC835 SI-3050CA
5V
TPAGND6
C853 16V 100
C852 16V 100
L836 22
C860 16V 100
C861 0.01
5mm-JW J5100
R1275 22 2W
9V REG. (MAIN)
12V
9V
C849 16V 100
OUT IN GND
IC833 AN7809-LB
HEAT SINK TUC25626
C863 0.01
C862 16V 330
L837 22
0.1A
SOUND 34V
Q3306 MSD601R
C3325 16V 10
R3346 15k
R317 22k
Q3309 MSB709R
NR-ON/OFF
PICTURE
SDA15 SCL15
R1208
A33
B5
CONV GND
CONV GND
CONV +B
CONV +B
CONV GND
CONV GND
CONV +B
CONV +B
HS
HS
HP
H-GND
HD
H-GND
SOS
H-WIDTH
A32
B4
E/W-OUT
VP1
BLK
ABL
NC
V GND
GND
V SAW
GND
GND
7V
7V
7V
20V
A31
B3
12V
GND
12V
GND
12V
BT30V
POWER ON/OFF
STB 12V
GND
GND
SOUND GND
SOUND 34V
SOUND GND
SOUND 34V

ents

03
0.80
0.80
0.00
8.80
2.50
1.00
8.80
9.10
9.10
8.80
0.00
2.90
8.80
0.00
0.00

35
0.10
4.30
4.90
4.90
6.20

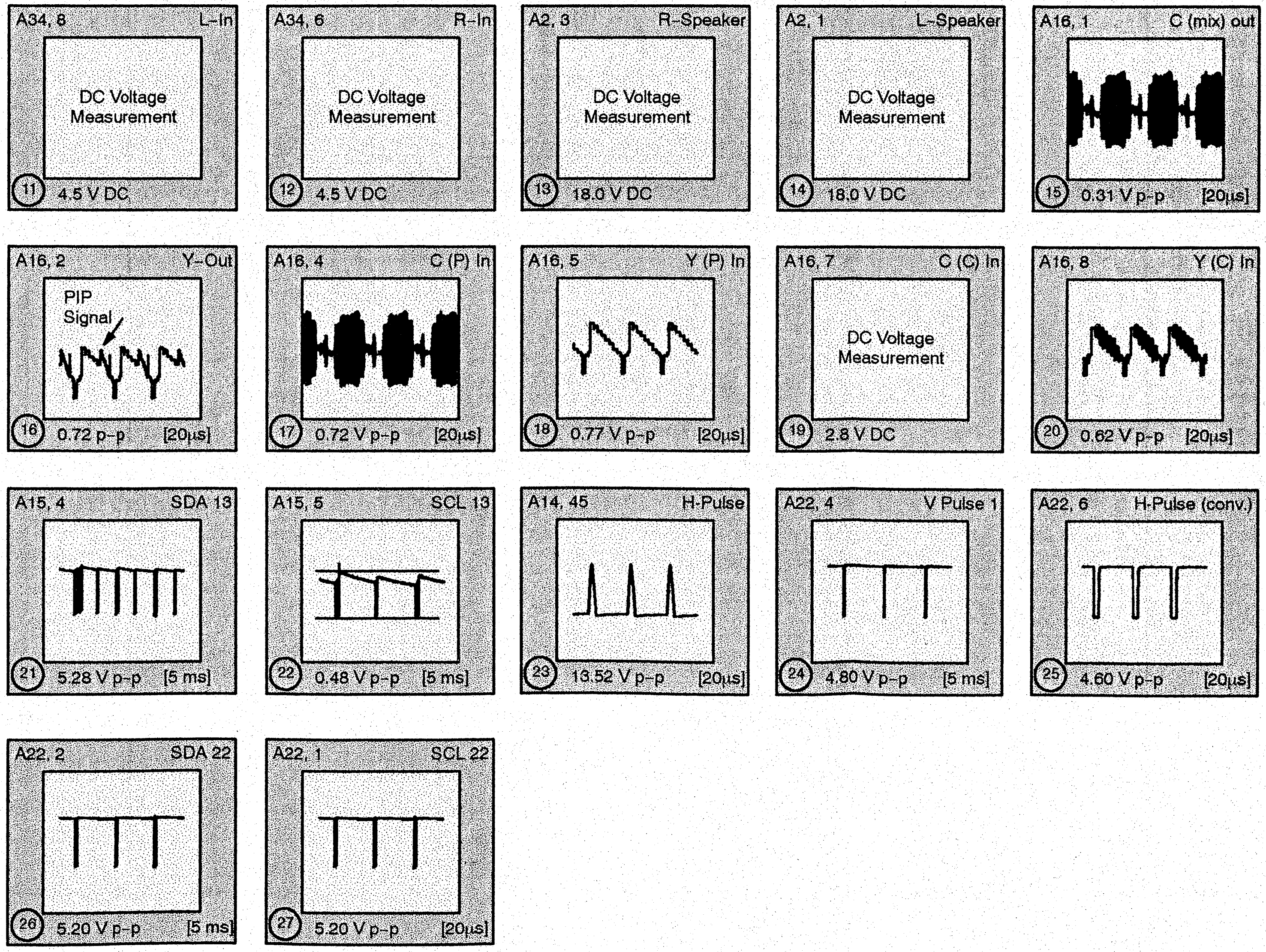
IC2301	
01	1.00
02	0.00
03	35.90
04	0.00
05	0.00
06	1.00
07	17.80
08	6.20
09	0.00
10	36.50
11	0.00
12	17.80

A–Board Transistors

	B	C	E
Q1110	0.60	0.00	0.00
Q1112	2.20	0.00	2.80
Q1113	5.30	5.10	5.10
Q1115	5.80	10.00	5.20
Q1116	5.80	12.80	5.20
Q1117	–0.80	3.60	0.00
Q1118	0.00	–0.10	0.70
Q1119	0.00	0.00	0.60
Q1120	0.00	0.00	0.60
Q1121	5.00	5.90	5.80
Q1125	0.10	8.90	0.10
Q1126	4.80	0.10	4.80
Q1716	3.70	4.40	3.10
Q1717	4.30	0.00	5.00

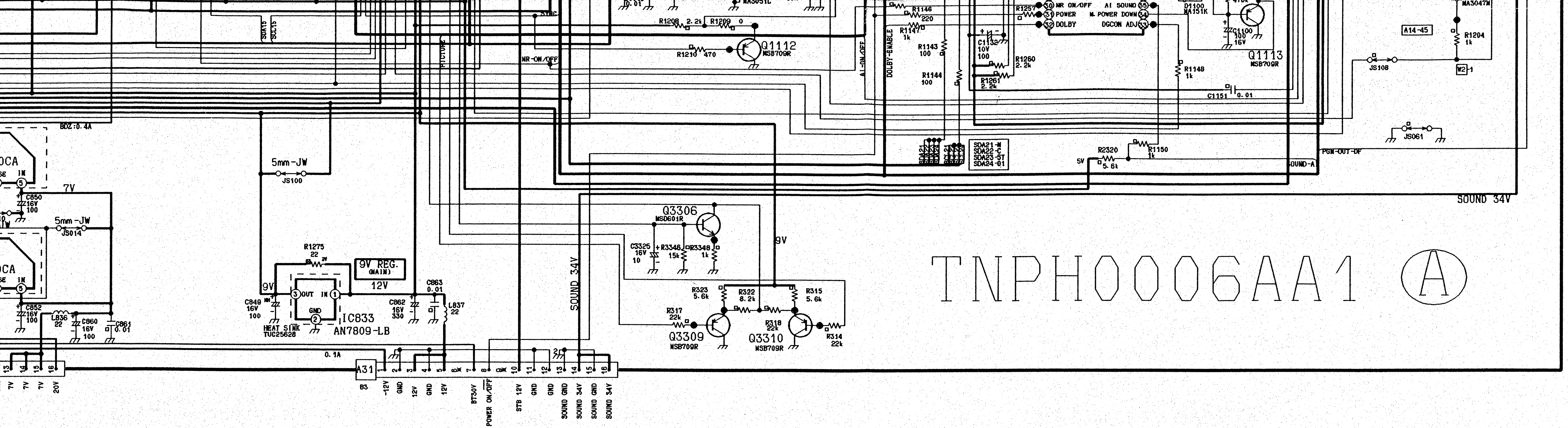
	B	C	E
Q2310	0.30	6.20	0.00
Q3306	0.20	3.90	0.00
Q3309	5.30	0.00	5.90
Q3310	2.20	0.00	2.90
Q412	0.00	4.70	0.00
Q4204	5.10	0.00	5.00
Q7001	0.80	6.00	0.40
Q7002	6.00	8.90	5.40
Q7003	2.00	8.80	1.70
Q7004	0.10	–0.10	0.00
Q7005	0.10	–0.10	0.00
Q7010	19.10	0.00	19.40
Q7011	–18.80	19.10	–19.10

Waveforms "A"–Board

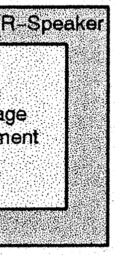


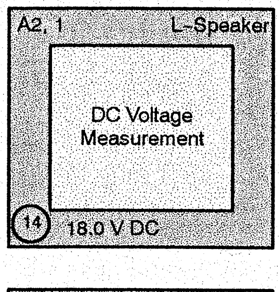
Board Index

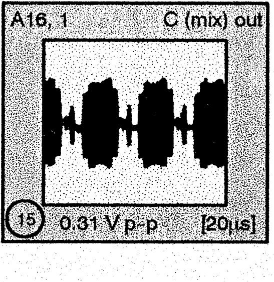
A	– **Board** –	MPU, audio a
AG	– **Board** –	video, chrom
B	– **Board** –	HV, H def/ sw
C	– **Board** –	digital conver
D1	– **Board** –	Dolby Pro Lo
D2	– **Board** –	sub power, a
K	– **Board** –	front panel co
G	– **Board** –	AV rear pane
LR	– **Board** –	CRT, red driv
LG	– **Board** –	CRT, green d
LB	– **Board** –	CRT, blue dri
M	– **Board** –	tuner, VIF, au
N	– **Board** –	1st VIF, SIF, A
P	– **Board** –	AC in, DM dr
Q	– **Board** –	over deflectio
R	– **Board** –	remote contro
W	– **Board** –	white balance
X	– **Board** –	AV terminal
Y	– **Board** –	PIP controlle
YC	– **Board** –	3D YC circuit

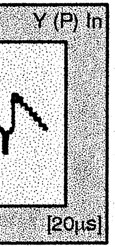

Q1112
MSB709R
R1208 2.2k
R1209 0
R1210 470
NR-ON/OFF
AI-ON/OFF
DOLBY-ENABLE
R1146 220
R1147 1k
R1143 100
R1144 100
C1132 10V 100
R1260 2.2k
R1261 2.2k
NR ON/OFF
POWER
DOLBY
AI SOUND
M. POWER DOWN
DGCON ADJ
D1100 MA151K
C1100 100 16V
Q1113
MSB709R
R1148 1k
C1151 0.01
A14-45
R1204 1k
MA3047M
JS108
JS061
SDA21-H
SDA22-C
SDA23-ST
SDA24-01
R2320 5.6k
5V
R1150 1k
SOUND-A
PGM-OUT-OF
SOUND 34V
BDZ:0.4A
7V
5mm-JW
JS100
C850 16V 100
5mm-JW
JS014
C852 16V 100
L836 22
C860 16V 100
C861 0.01
C849 16V 100
9V
R1275 22
9V REG. (MAIN)
12V
OUT
IN
GND
HEAT SINK
TUC25628
IC833
AN7809-LB
C863 0.01
C862 16V 330
L837 22
SOUND 34V
Q3306
MSD601R
C3325 16V 10
R3346 15k
R3348 1k
9V
R323 5.6k
R322 8.2k
R315 5.6k
R317 22k
R318 22k
R314 22k
Q3309
MSB709R
Q3310
MSB709R
0.1A
A31
B3
-12V
GND
12V
GND
12V
BT30V
POWER ON/OFF
STB 12V
GND
GND
SOUND GND
SOUND 34V
SOUND GND
SOUND 34V
7V
7V
7V
20V
TNPH0006AA1 Ⓐ

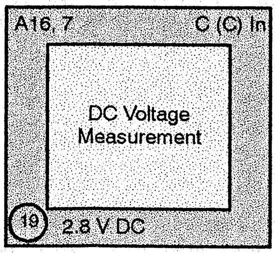
“A”–Board

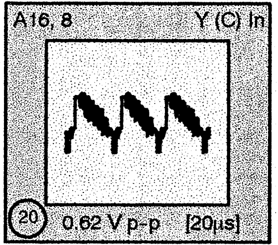

R-Speaker
age
ment

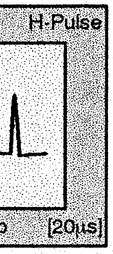

A2, 1
L-Speaker
DC Voltage Measurement
⑭ 18.0 V DC

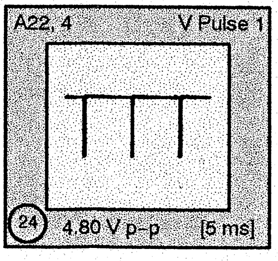


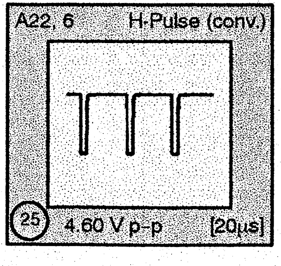



A16, 7
C (C) In
DC Voltage Measurement
⑲ 2.8 V DC









Board Index

A	**– Board –**	MPU, audio & convergence out
AG	**– Board –**	video, chroma jungle
B	**– Board –**	HV, H def/ sw pwr
C	**– Board –**	digital convergence
D1	**– Board –**	Dolby Pro Logic
D2	**– Board –**	sub power, audio amp
K	**– Board –**	front panel control
G	**– Board –**	AV rear panel
LR	**– Board –**	CRT, red drive
LG	**– Board –**	CRT, green drive, VM drive
LB	**– Board –**	CRT, blue drive
M	**– Board –**	tuner, VIF, audio control, AV switch
N	**– Board –**	1st VIF, SIF, AFC, DET, MTS
P	**– Board –**	AC in, DM drive, H drive, EHT correction
Q	**– Board –**	over deflection blanking, EHT protection
R	**– Board –**	remote control sensor
W	**– Board –**	white balance, switching
X	**– Board –**	AV terminal
Y	**– Board –**	PIP controller, processor
YC	**– Board –**	3D YC circuit

Waveform Measurements

1. ③ indicates waveform measurement. (Measurement can be taken at the best accessible location in common to the indicated point.)
2. Taken with a NTSC signal generator connected to the antenna terminal. (NTSC color bar pattern of 8 bars of EIA colors, 100 IRE white and 7.5 IRE black.)
3. Customer Controls (Picture/Audio Menu) are set to Normalize. Volume is set to "MIN".
4. All video and color waveforms are taken with a wideband scope and a probe with low capacitance (10 to 1). Shape and peak amplitudes may vary depending on the type of Oscilloscope used and its settings.
5. Ground symbol ⏚ shown on waveform number indicates (Hot) ground lead connection of the Oscilloscope. **CAUTION:** Incorrect ground connection of the test equipment will result in erroneous readings.

The waveforms are taken in the order of circuit flow through the various sections as follows:

VIDEO – Waveforms 1~2
COLOR – Waveforms 3~9
VERTICAL – Waveforms 10~15
HORIZONTAL – Waveforms 16~20
CRT DRIVE – Waveforms 21 & 22

Schematic Notes

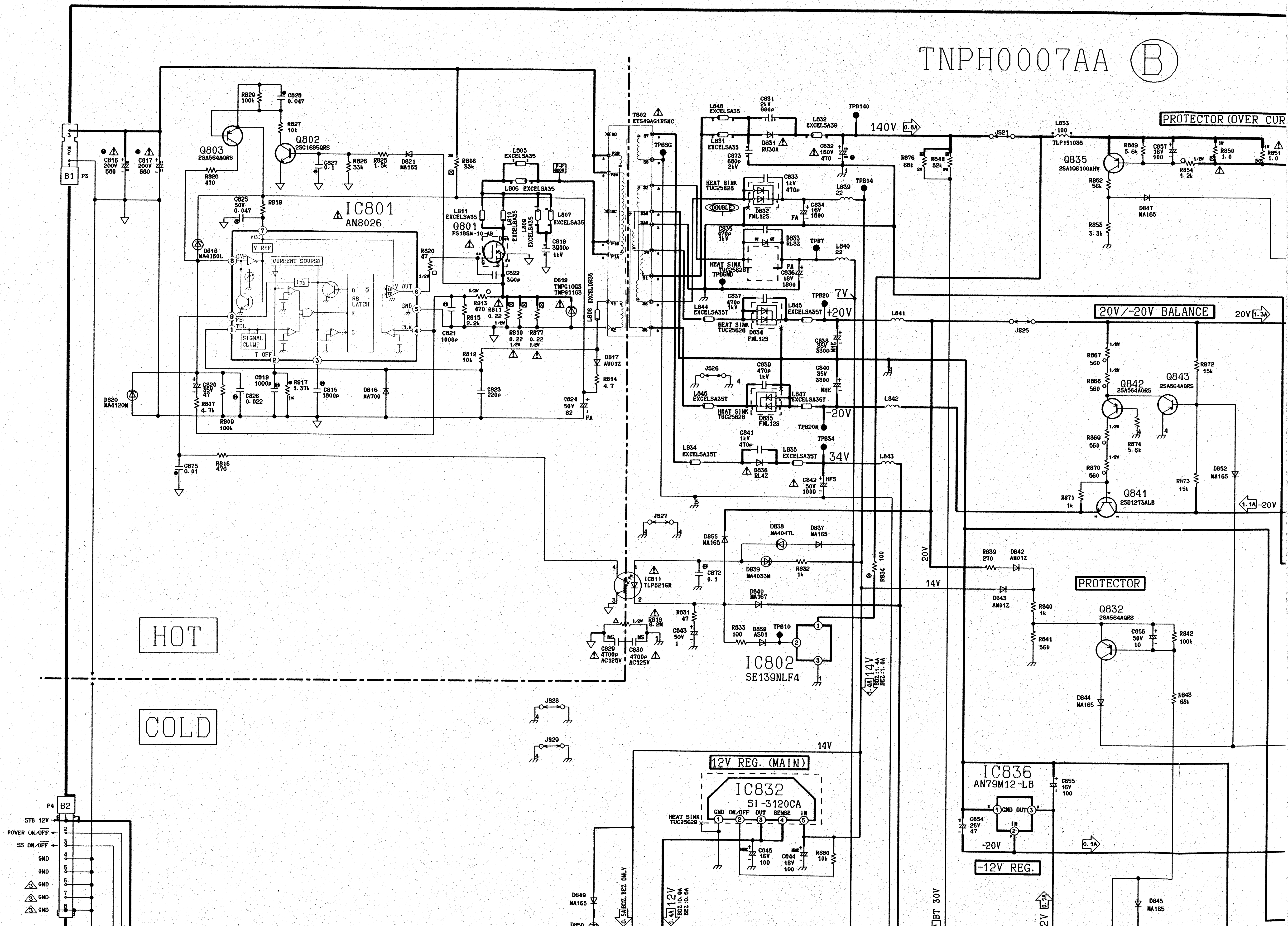
1. Resistors are carbon 1/4W unless noted otherwise.
2. Capacitors are ceramic 50V unless noted otherwise.
3. Coil value noted is inductance in µH.
4. Test point indicated by ●; Test point but no pin ○.
5. Components indicated with ⚠ are critical parts and replacement should be made with manufacture specified replacement parts only.
6. — **(BOLD LINE)** Indicates the route of B+ supply.
7. The schematic diagrams are current at the time of printing and are subject to change without notice.
8. Ground symbol ⏚ indicates **HOT GROUND CONNECTION;** ⊥ indicates COLD GROUND.

Note: *All other component symbols are used for engineering design purposes.*

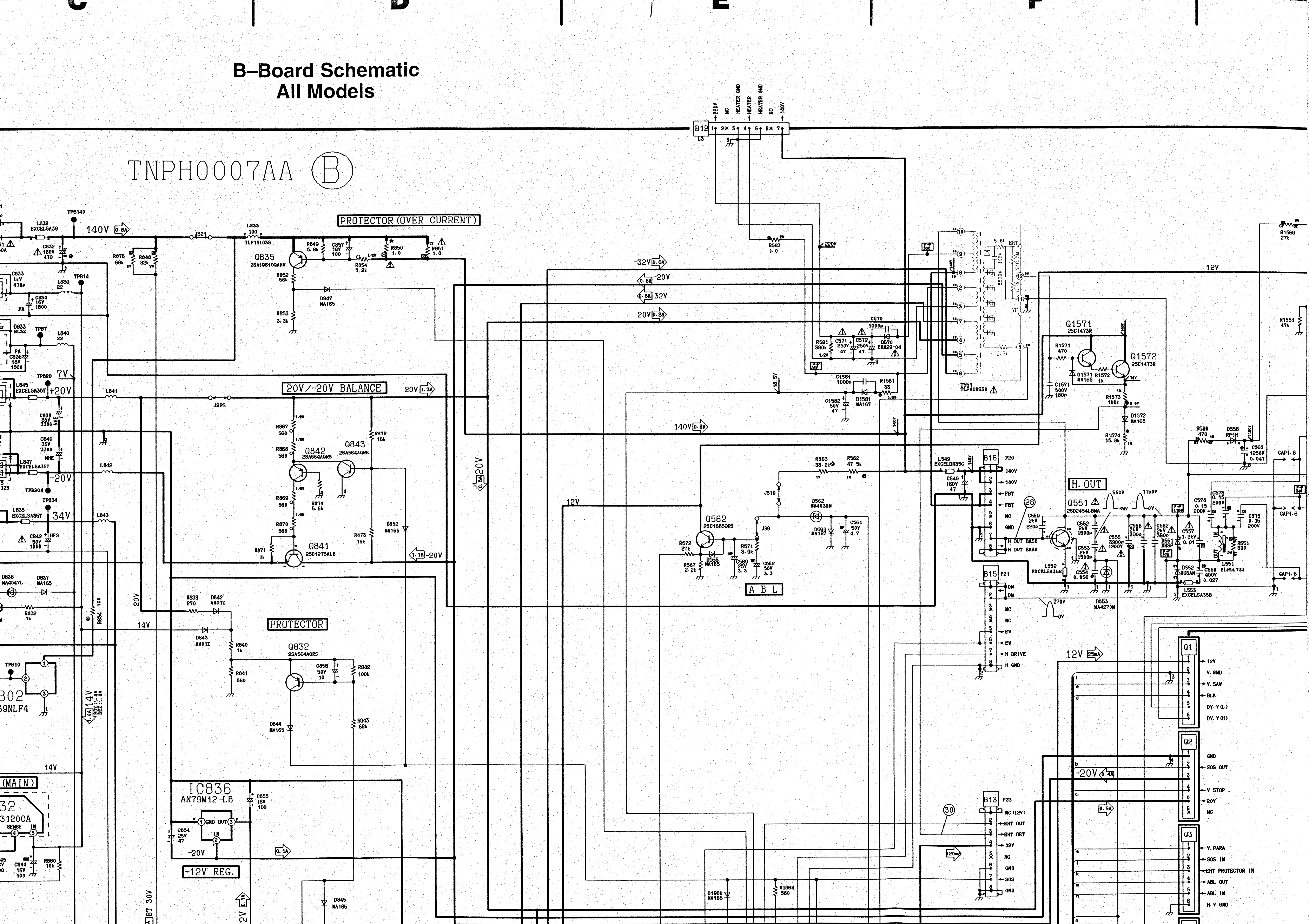
Voltage Measurements

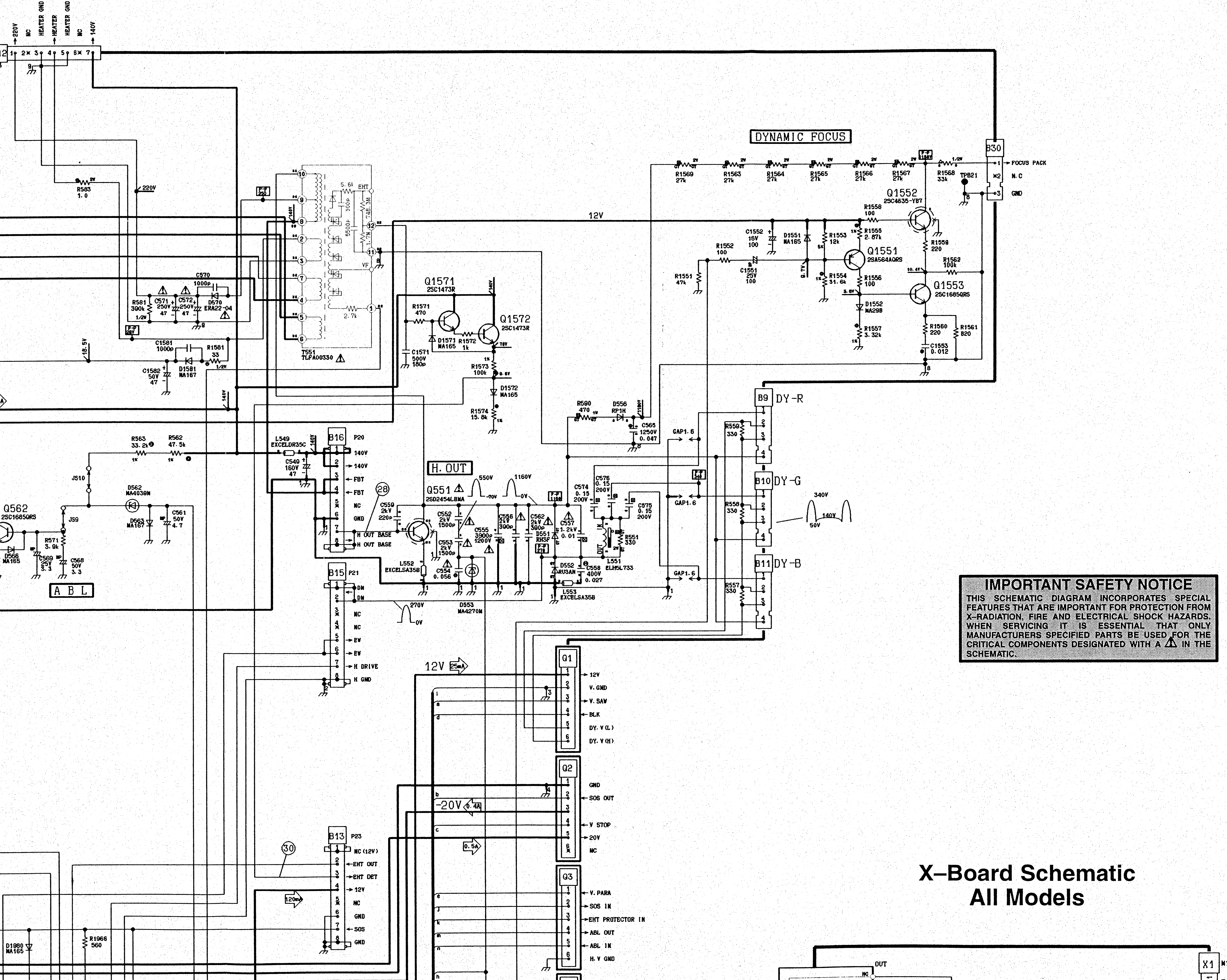
1. Voltage measurement:
   - AC input to the Receiver is 120V. NTSC generator is connected to the antenna of the Receiver. (Color bar pattern of 100IRE white and 7.5 IRE black.)
   - All Picture and Audio adjustments are set to Normalize.
     TV ANT/CABLE – (Set-Up Menu) in TV/ANT Mode
     Volume – Min
     TV/Video SW – TV position
     Audio Mode – Stereo
   - Voltage readings are nominal and may vary ±10% on active devices. Some voltage reading will vary with signal strength and picture content.
   - Supply voltages are all nominal.
2. Ground symbol ⏚ indicates ground lead connection of meter. **Caution: Incorrect ground connection will result in erroneous readings.**

B–Board Schematic
All Models


1
2
3
TNPH0007AA (B)
PROTECTOR (OVER CUR
B1
B2
P3
P4
C816 200V 680
C817 200V 680
R829 100k
C828 0.047
R827 10k
Q803 2SA564AQRS
Q802 2SC1685QRS
R828 470
C827 0.1
R826 33k
R825 1.5k
D821 MA165
R808 33k
IC801 AN8026
R819
C825 50V 0.047
D818 MA4160L
VCC
V REF
CURRENT SOURSE
OVP
IPE
RS LATCH
V OUT
GND
CLM
FB
TDL
SIGNAL CLUMP
T OFF
R820 47
L805 EXCELSA35
L806 EXCELSA35
L811 EXCELSA35
L810 EXCELSA35
L809 EXCELSA35
L807 EXCELSA35
Q801 FS185N-10-A8
C818 3900p 1kV
C822 390p
D819 TMPG10G3 TMPG11G3
L808 EXCELDR35
R813 470
R815 2.2k
R811 0.22
R810 0.22
R877 0.22
C821 1000p
R812 10k
D817 AU01Z
R814 4.7
C823 220p
C824 50V 82
D820 MA4120M
C820 35V 47
R807 4.7k
C819 1000p
C826 0.022
R817 1.37k
C815 1800p
D816 MA700
R809 100k
C875 0.01
R816 470
T802 ETS40AG1R5NC
TP8SG
L848 EXCELSA35
C831 2kV 680p
L832 EXCELSA39
TPB140
140V 0.8A
L831 EXCELSA35
D831 RU30A
C832 160V 470
C873 680p 2kV
HEAT SINK TUC25628
C833 1kV 470p
DOUBLE
D832 FML12S
C834 16V 1800
L839 22
TPB14
C835 470p 1kV
D833 RL32
TP87
L840 22
HEAT SINK TUC25628
TPB6ND
C836 16V 1800
C837 470p 1kV
L844 EXCELSA35T
L845 EXCELSA35T
TPB20
7V
+20V
HEAT SINK TUC25628
D834 FML12S
C838 35V 3300
JS26
C839 470p 1kV
C840 35V 3300
L846 EXCELSA35T
L847 EXCELSA35T
HEAT SINK TUC25628
D835 FML12S
-20V
TPB20N
C841 1kV 470p
TPB34
L834 EXCELSA35T
L835 EXCELSA35T
34V
D836 RL4Z
C842 50V 1000
R876 68k
R848 82k
JS21
L833 100
TLP151035
R849 5.6k
C857 16V 100
R850 1.0
R851 1.0
R854 1.2k
Q835 2SA1961OQAHW
R852 56k
R853 3.3k
D847 MA165
L841
L842
L843
JS25
20V/-20V BALANCE
20V 1.3A
R867 560
R868 560
Q842 2SA564AQRS
Q843 2SA564AQRS
R872 15k
R869 560
R874 5.6k
R870 560
R873 15k
D852 MA165
R871 1k
Q841 2SD1273ALB
1.1A -20V
JS27
D855 MA165
D838 MA4047L
D837 MA165
D839 MA4033M
R832 1k
IC811 TLP621GR
C872 0.1
D840 MA167
R834 100
20V
14V
R839 270
D842 AM01Z
D843 AM01Z
R840 1k
R841 560
PROTECTOR
Q832 2SA564AQRS
C856 50V 10
R842 100k
R831 47
R818 8.2M
C843 50V 1
R833 100
D859 AS01
TPB10
IC802 SE139NLF4
C829 4700p AC125V
C830 4700p AC125V
HOT
COLD
JS28
JS29
14V
0.4A 14V BDZ:1.4A BEZ:1.0A
12V REG. (MAIN)
IC832 SI-3120CA
HEAT SINK TUC25629
GND ON/OFF OUT SENSE IN
C845 16V 100
C844 16V 100
R880 10k
D844 MA165
R843 68k
IC836 AN79M12-LB
GND OUT IN
C855 16V 100
C854 25V 47
-20V
0.1A
-12V REG.
STB 12V
POWER ON/OFF
SS ON/OFF
GND
GND
GND
GND
GND
D849 MA165
D850
0.5A BDZ.BEZ ONLY
12V BDZ:0.9A BEZ:0.6A
BT 30V
D845 MA165

B–Board Schematic
All Models


C
D
E
F
TNPH0007AA
B
B12
220V
NC
HEATER GND
HEATER
HEATER GND
NC
140V
PROTECTOR (OVER CURRENT)
140V 0.8A
L832 EXCEL5A39
TPB140
JS21
L833 100 TLP151035
Q835 2SA1061OQAHW
R849 5.6k
C857 16V 100
R850 1.0
R851 1.0
R854 1.2k
R852 56k
R853 3.3k
D847 MA165
R876 68k
R848 82k
C832 160V 470
C833 1kV 470p
L839 22
TPB14
C834 16V 1800
D833 RL3Z
TPB7
L840 22
C836 16V 1800
TPB20 7V
L845 EXCEL5A35T +20V
L841
JS25
20V/-20V BALANCE
20V 1.3A
R867 560
R868 560
R869 560
R870 560
R871 1k
Q842 2SA564AQRS
Q843 2SA564AQRS
Q841 2SD1273ALB
R872 15k
R873 15k
R874 5.6k
D852 MA165
1.1A -20V
C838 35V 3300
C840 35V 3300
L847 EXCEL5A35T
L842
-20V
TPB20N
TPB34
L835 EXCEL5A35T 34V
L843
C842 50V 1000
D838 MA4047L
D837 MA165
R832 1k
R834 100
20V
14V
R839 270
D842 AM01Z
D843 AM01Z
R840 1k
R841 560
PROTECTOR
Q832 2SA564AQRS
C856 50V 10
R842 100k
R843 68k
D844 MA165
TPB10
802
39NLF4
14V 1.4A
14V
(MAIN)
3120CA
SENSE IN
C844 16V 100
R880 10k
IC836
AN79M12-LB
GND OUT
IN
C855 16V 100
C854 25V 47
-20V
-12V REG.
0.1A
D845 MA165
30V
-32V 0.6A
0.6A -20V
0.6A 32V
20V 0.8A
140V 0.8A
20V 0.5A
12V
R583 1.0
220V
18.5V
R581 390k
C571 250V 47
C572 250V 47
C570 1000p
D570 ERA22-04
C1581 1000p
R1581 33
C1582 50V 47
D1581 MA167
T551 TLFA00330
EHT
5.6M
100p
5500p
2.7k
VF
12V
Q1571 2SC1473R
Q1572 2SC1473R
R1571 470
D1571 MA165
R1572 1k
C1571 500V 180p
R1573 100k
D1572 MA165
R1574 15.8k
R1569 27k
R1551 47k
R563 33.2k
R562 47.5k
JS10
JS9
D562 MA4039N
D563 MA167
C561 50V 4.7
Q562 2SC1685QRS
R572 27k
R567 2.2k
D566 MA165
R571 3.9k
C569 25V 3.3
C568 50V 3.3
A B L
L549 EXCELDR35C
C549 160V 47
B16
P20
140V
140V
FBT
FBT
NC
GND
H OUT BASE
H OUT BASE
28
H. OUT
Q551 2SD2454LBNA
550V
1160V
-70V
0V
C550 2kV 220p
C552 2kV 1500p
C553 2kV 1500p
C555 3900p 1200V
C556 2kV 390p
C562 2kV 560p
D551 RH3F
C557 1.2kV 0.01
C574 0.15 200V
C576 0.15 200V
C575 0.15 200V
R551 330
L551 ELH5L733
C554 0.056
L552 EXCELSA358
D552 RU3AM
C558 400V 0.027
L553 EXCELSA358
D553 MA4270M
270V
0V
R590 470
D556 RP1H
C565 1250V 0.047
GAP1.6
GAP1.6
GAP1.6
B15
P21
DW
DW
NC
NC
EW
EW
H DRIVE
H GND
12V 25mA
Q1
12V
V.GND
V.SAW
BLK
DY.V(L)
DY.V(H)
Q2
GND
SOS OUT
V STOP
20V
NC
-20V 0.4A
0.5A
30
B13
P23
NC(12V)
EHT OUT
EHT DET
12V
NC
GND
SOS
GND
120mA
Q3
V.PARA
SOS IN
EHT PROTECTOR IN
ABL OUT
ABL IN
H.V GND
D1980 MA165
R1966 560



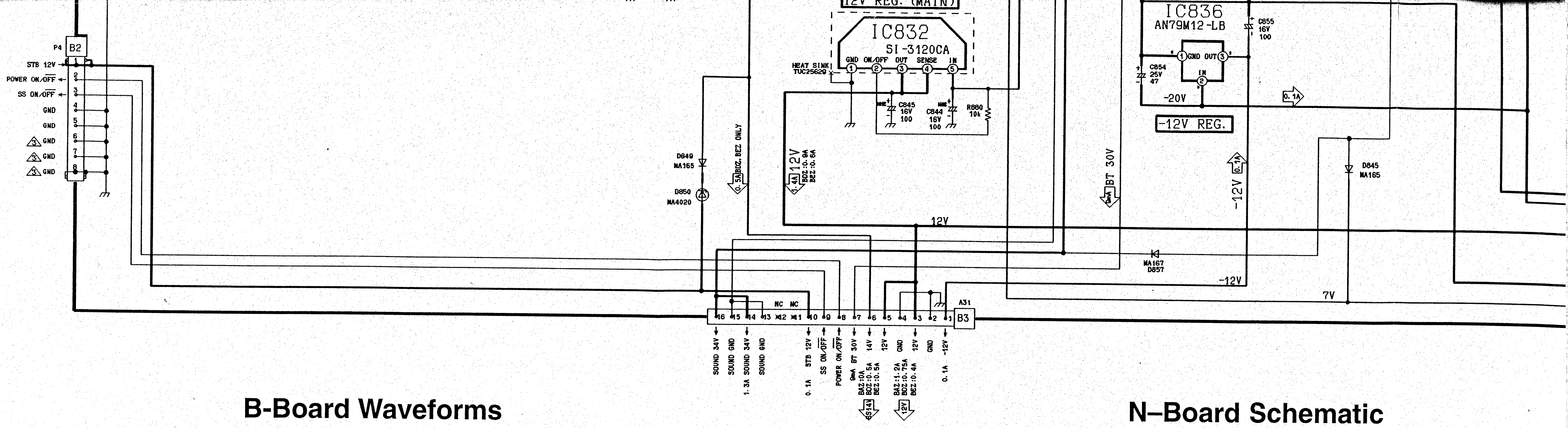
220V
NC
HEATER GND
HEATER
HEATER GND
NC
140V
DYNAMIC FOCUS
R1569 27k
R1563 27k
R1564 27k
R1565 27k
R1566 27k
R1567 27k
R1568 33k
TPB21
B30
FOCUS PACK
N.C
GND
Q1552 2SC4635-YBT
12V
R1558 100
R1555 2.87k
R1553 12k
D1551 MA165
C1552 16V 100
R1552 100
C1551 25V 100
R1551 47k
Q1551 2SA564AQRS
R1554 31.6k
R1556 100
D1552 MA29B
R1557 3.32k
R1559 220
R1562 100k
Q1553 2SC1685QRS
R1560 220
R1561 820
C1553 0.012
R583 1.0
220V
C570 1000p
R581 390k
C571 250V 47
C572 250V 47
D570 ERA22-04
T551 TLFA00330
EHT
5.6k
100p
748.3M
6500p
2.7k
VF
Q1571 2SC1473R
R1571 470
Q1572 2SC1473R
D1571 MA165
R1572 1k
C1571 500V 180p
R1573 100k
D1572 MA165
R1574 15.8k
18.5V
C1581 1000p
R1581 33
C1582 50V 47
D1581 MA167
140V
R590 470
D556 RP1H
C565 1250V 0.047
GAP1.6
B9 DY-R
R559 330
B10 DY-G
R558 330
B11 DY-B
R557 330
340V
140V
50V
R563 33.2k
R562 47.5k
L549 EXCELDR35C
C549 160V 47
B16 P20
140V
140V
FBT
FBT
NC
GND
H OUT BASE
H OUT BASE
J510
D562 MA4039N
Q562 2SC1685QRS
J59
D563 MA167
C561 50V 4.7
R571 3.9k
D566 MA165
C569 25V 3.3
C568 50V 3.3
A B L
H. OUT
Q551 2SD2454LBMA
550V
1160V
-70V
0V
C559 2kV 220p
C552 2kV 1500p
C553 2kV 1500p
C555 3900p 1200V
C556 2kV 390p
C562 2kV 390p
D551 RH3F
C557 1.2kV 0.01
C574 0.15 200V
C576 0.15 200V
C575 0.15 200V
R551 330
L551 ELH5L733
D552 RU3AM
C558 400V 0.027
L553 EXCELSA35B
L552 EXCELSA35B
C554 0.056
D553 MA4270M
B15 P21
DM
DM
NC
NC
EW
EW
H DRIVE
H GND
270V
0V
12V
25mA
Q1
12V
V. GND
V. SAW
BLK
DY. V(L)
DY. V(H)
Q2
GND
SOS OUT
-20V
0.4A
V STOP
20V
NC
0.5A
B13 P23
NC(12V)
EHT OUT
EHT DET
12V
NC
GND
SOS
GND
120mA
Q3
V. PARA
SOS IN
EHT PROTECTOR IN
ABL OUT
ABL IN
H. V GND
D1980 MA165
R1966 560
X1
M1
OUT
NC

IMPORTANT SAFETY NOTICE

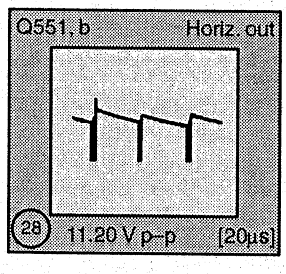
THIS SCHEMATIC DIAGRAM INCORPORATES SPECIAL FEATURES THAT ARE IMPORTANT FOR PROTECTION FROM X-RADIATION, FIRE AND ELECTRICAL SHOCK HAZARDS. WHEN SERVICING IT IS ESSENTIAL THAT ONLY MANUFACTURERS SPECIFIED PARTS BE USED FOR THE CRITICAL COMPONENTS DESIGNATED WITH A ⚠ IN THE SCHEMATIC.

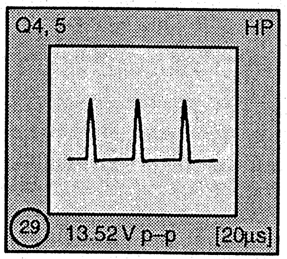
X–Board Schematic
All Models

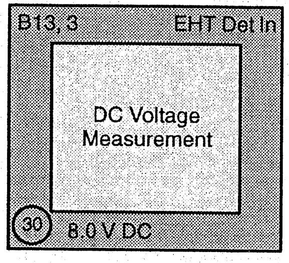
3


12V REG. (MAIN)
IC832
SI-3120CA
GND ON/OFF OUT SENSE IN
HEAT SINK TUC25620
C845 16V 100
C844 16V 100
R860 10k
IC836
AN79M12-LB
GND OUT
IN
C855 16V 100
C854 25V 47
-20V
-12V REG.
0.1A
P4
B2
STB 12V
POWER ON/OFF
SS ON/OFF
GND
GND
GND
GND
GND
D849 MA165
D850 MA4020
0.5A BEZ. BEZ ONLY
4A 12V BEZ:0.9A BEZ:0.6A
12V
BT 30V
0.1A -12V
D845 MA165
D857 MA167
-12V
7V
NC NC
A31
B3
SOUND 34V
SOUND GND
1.3A SOUND 34V
SOUND GND
0.1A STB 12V
SS ON/OFF
POWER ON/OFF
BT 30V
14V
12V
GND
12V
GND
0.1A -12V
BEZ:10A BEZ:0.5A BEZ:0.5A
BEZ:1.2A BEZ:0.75A BEZ:0.4A

B-Board Waveforms






B13, 3
EHT Det In
DC Voltage Measurement
30
8.0 V DC

4

B–Board Voltage Measurements

↓ IC801	
01	1.10
02	0.30
03	0.20
04	0.20
05	0.00
06	6.60
07	20.70
08	6.20
09	6.00

IC802	
01	138.10
02	8.50
03	0.00

IC811	
01	9.90
02	8.90
↓ 03	0.00
↓ 04	5.90

IC832	
01	–0.10
02	4.30
03	12.00
04	12.00
05	12.90

IC836	
01	0.00
02	–19.30
03	–12.10

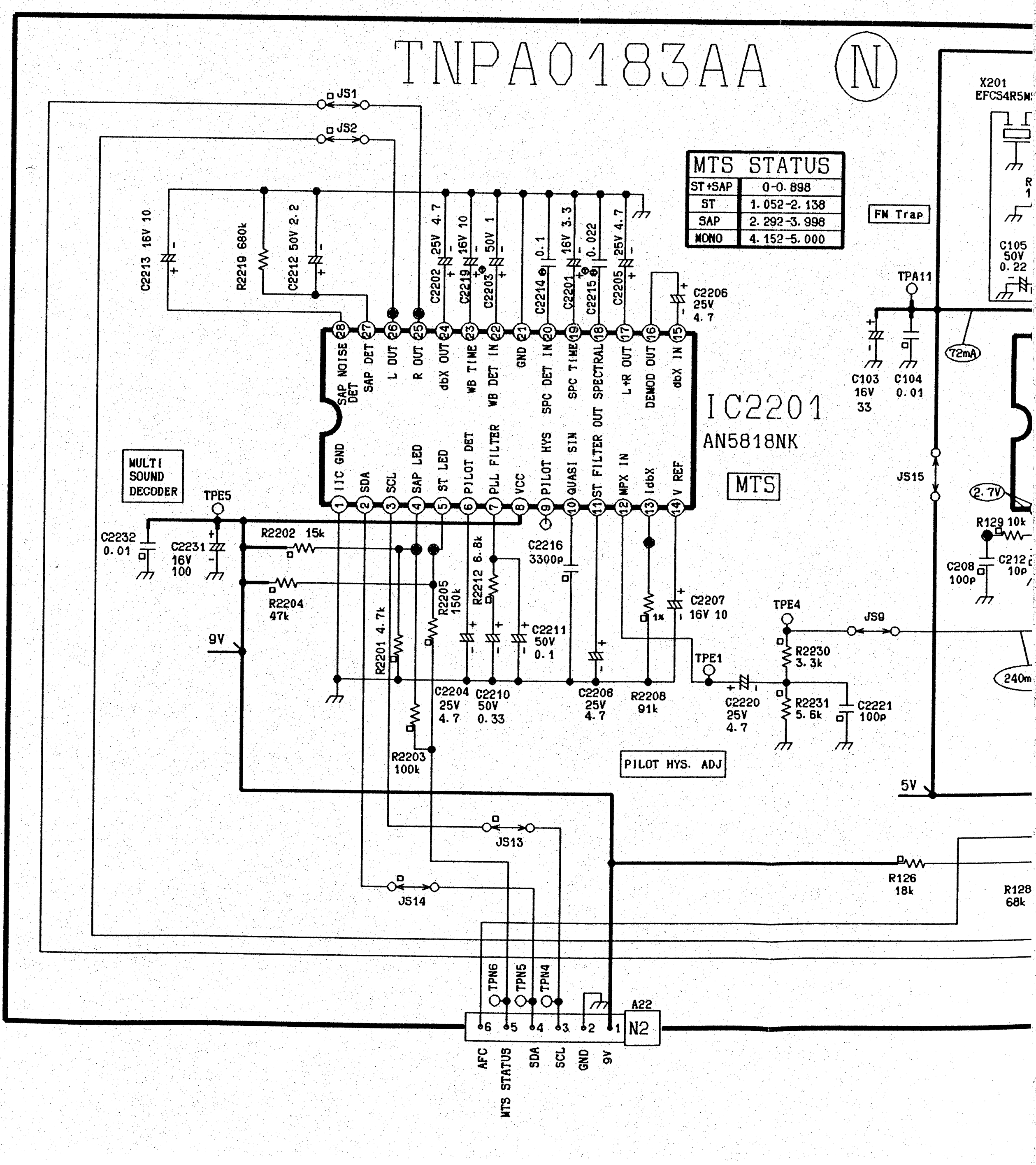
5

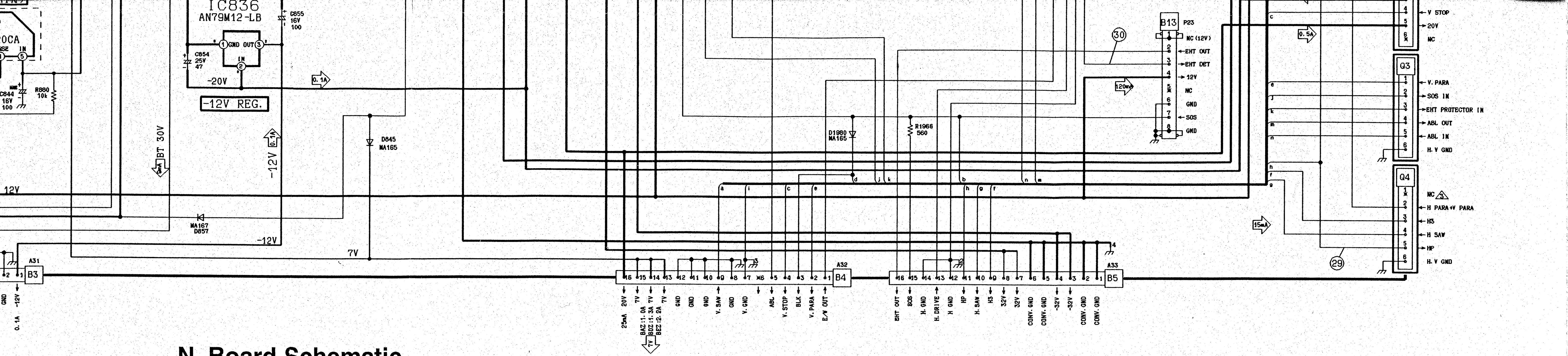
B–Board Transistors

	B	C	E
Q551	0.00	145.20	0.00
Q562	2.60	12.00	1.90
↓ Q801	G 6.60	S 0.20	D 126.20
Q802	0.10	20.50	0.00
Q803	20.50	6.20	20.70
Q832	5.90	–1.50	5.80
Q835	138.00	–0.10	138.30

	B	C	E
Q841	–18.90	–19.30	–19.70
Q842	0.30	–0.80	0.90
Q843	0.60	0.90	–0.10
Q1551	8.70	3.60	9.30
Q1552	12.00		11.40
Q1553	3.40	10.60	2.90
Q1571	59.50	137.90	68.70
Q1572	68.60	137.90	68.10

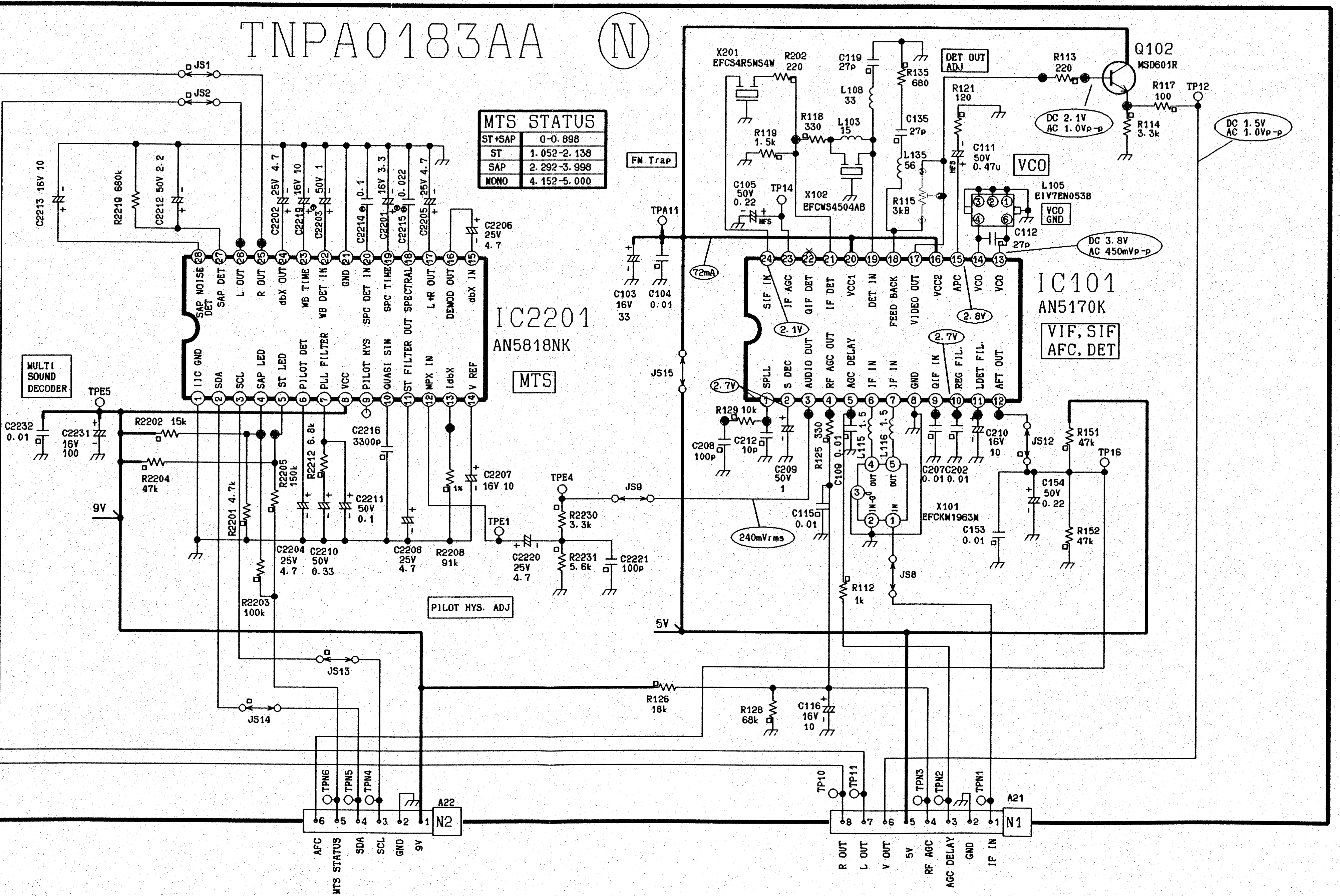
N–Board Schematic All Models


TNPA0183AA
N
X201
EFC54R5M
FM Trap
MTS STATUS
ST+SAP 0-0.898
ST 1.052-2.138
SAP 2.292-3.998
MONO 4.152-5.000
JS1
JS2
C2213 16V 10
R2219 680k
C2212 50V 2.2
C2202 25V 4.7
C2211 16V 10
C2203 50V 1
C2214 0.1
C2201 16V 3.3
C2215 0.022
C2205 25V 4.7
C2206 25V 4.7
SAP NOISE DET
SAP DET
L OUT
R OUT
dbX OUT
WB TIME
WB DET IN
GND
SPC DET IN
SPC TIME
SPECTRAL FILTER OUT
L+R OUT
DEMOD OUT
dbX IN
IIC GND
SDA
SCL
SAP LED
ST LED
PILOT DET
PLL FILTER
VCC
PILOT HYS
QUASI SIN
ST FILTER OUT
MPX IN
Idbx
V REF
IC2201
AN5818NK
MTS
MULTI SOUND DECODER
TPE5
C2232 0.01
C2231 16V 100
R2202 15k
R2204 47k
9V
R2201 4.7k
R2205 150k
R2212 6.8k
C2216 3300p
C2211 50V 0.1
C2207 16V 10
1k
C2204 25V 4.7
C2210 50V 0.33
C2208 25V 4.7
R2208 91k
R2203 100k
PILOT HYS. ADJ
TPE1
TPE4
R2230 3.3k
R2231 5.6k
C2220 25V 4.7
C2221 100p
JS9
JS13
JS14
JS15
TPA11
C103 16V 33
C104 0.01
C105 50V 0.22
72mA
2.7V
R129 10k
C208 100p
C212 10p
240m
5V
R126 18k
R128 68k
TPN6
TPN5
TPN4
A22
N2
AFC
MTS STATUS
SDA
SCL
GND
9V



IC836
AN79M12-LB
C855 16V 100
C854 25V 47
GND OUT
IN
-20V
-12V REG.
0.1A
R880 10k
C844 16V 100
D845 MA165
BT 30V
-12V
12V
MA167 D857
-12V
7V
A31
B3
GND
-12V
0.1A
D1980 MA165
R1966 560
A32
B4
A33
B5
20V
7V
7V
7V
GND
GND
GND
V. SAW
GND
V. GND
ABL
V. STOP
BLK
V. PARA
E/W OUT
25mA
BAZ:1.0A BBZ:1.3A BCZ:2.2A
EHT OUT
SOS
H. GND
H. DRIVE
H GND
HP
H. SAW
H3
32V
32V
CONV. GND
CONV. GND
-32V
-32V
CONV. GND
CONV. GND
B13
P23
NC(12V)
EHT OUT
EHT DET
12V
NC
GND
SOS
GND
120mA
30
0.5A
V STOP
20V
NC
G3
V. PARA
SOS IN
EHT PROTECTOR IN
ABL OUT
ABL IN
H. V GND
Q4
NC
H PARA+V PARA
H3
H SAW
HP
H. V GND
15mA
29

N–Board Schematic
All Models



TNPA0183AA
N
JS1
JS2
MTS STATUS
ST+SAP 0-0.898
ST 1.052-2.138
SAP 2.292-3.998
MONO 4.152-5.000
FM Trap
C2213 16V 10
R2219 680k
C2212 50V 2.2
C2202 25V 4.7
C2219 16V 10
C2203 50V 1
C2214 0.1
C2201 16V 3.3
C2215 0.022
C2205 25V 4.7
C2206 25V 4.7
SAP NOISE DET
SAP DET
L OUT
R OUT
dbX OUT
WB TIME
WB DET IN
GND
SPC DET IN
SPC TIME
ST FILTER OUT SPECTRAL
L+R OUT
DEMOD OUT
dbX IN
IIC GND
SDA
SCL
SAP LED
ST LED
PILOT DET
PLL FILTER
VCC
PILOT HYS
QUASI SIN
MPX IN
ldbX
V REF
IC2201
AN5818NK
MTS
MULTI SOUND DECODER
TPE5
C2232 0.01
C2231 16V 100
R2202 15k
R2204 47k
9V
R2201 4.7k
R2205 150k
R2212 6.8k
C2216 3300p
C2211 50V 0.1
C2207 16V 10
1k
C2204 25V 4.7
C2210 50V 0.33
C2208 25V 4.7
R2208 91k
R2203 100k
PILOT HYS. ADJ
TPE4
TPE1
R2230 3.3k
R2231 5.6k
C2221 100p
C2220 25V 4.7
JS9
JS13
JS14
X201 EFCS4R5MS4W
R202 220
C119 27p
R135 680
DET OUT ADJ
R113 220
Q102 MSD601R
R117 100
TP12
L108 33
R121 120
DC 2.1V AC 1.0Vp-p
R114 3.3k
DC 1.5V AC 1.0Vp-p
R118 330
L103 15
C135 27p
R119 1.5k
L135 56
C111 50V 0.47u
VCO
C105 50V 0.22
TP14
X102 EFCW54504AB
R115 3kB
L105 EIV7EN053B
VCO GND
C112 27p
DC 3.8V AC 450mVp-p
TPA11
72mA
C103 16V 33
C104 0.01
SIF IN
IF AGC
QIF DET
IF DET
VCC1
DET IN
FEED BACK
VIDEO OUT
VCC2
APC
VCO
VCO
IC101
AN5170K
VIF, SIF AFC, DET
2.1V
2.8V
2.7V
2.7V
SPLL
S DEC
AUDIO OUT
RF AGC OUT
AGC DELAY
IF IN
IF IN
GND
QIF IN
REG FIL.
LDET FIL.
AFT OUT
JS15
R129 10k
C208 100p
C212 10p
C209 50V 1
R125 330
C109 0.01
L115 1.5
L116 1.5
C207 0.01
C202 0.01
C210 16V 10
JS12
R151 47k
TP16
X101 EFCKN1963M
C154 50V 0.22
C115 0.01
C153 0.01
R152 47k
240mVrms
R112 1k
JS8
5V
R126 18k
R128 68k
C116 16V 10
TPN6
TPN5
TPN4
A22
N2
AFC
MTS STATUS
SDA
SCL
GND
9V
TP10
TP11
TPN3
TPN2
TPN1
A21
N1
R OUT
L OUT
V OUT
5V
RF AGC
AGC DELAY
GND
IF IN

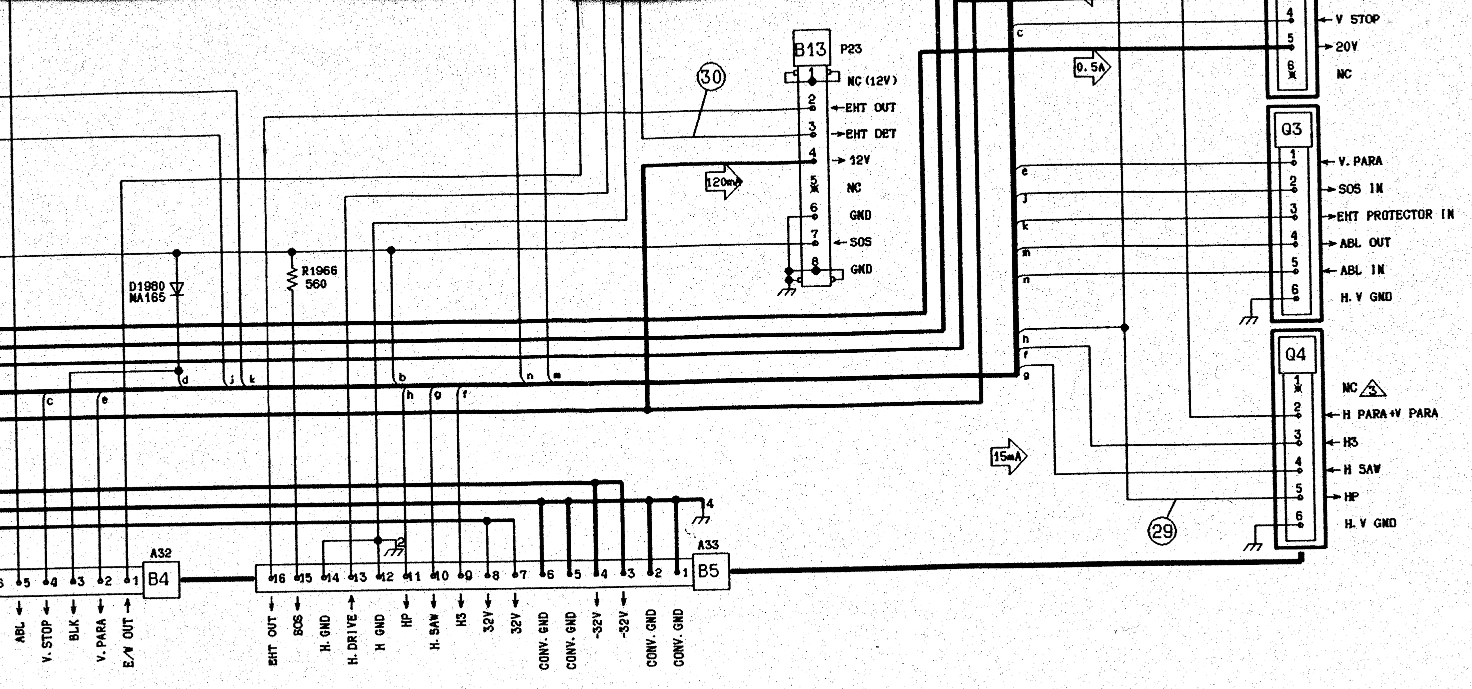
N–Board Voltage Measurements

IC101	
01 .. 2.20	13 .. 3.50
02 .. 2.10	14 .. 3.50
03 .. 2.10	15 .. 2.60
04 .. 2.60	16 .. 4.90
05 .. 2.40	17 .. 2.00
06 .. 2.60	18 .. 1.90
07 .. 2.50	19 .. 4.80
08 .. 0.00	20 .. 4.80
09 .. 2.60	21 .. 1.90
10 .. 1.10	22 .. N.C
11 .. 2.60	23 .. 2.40
12 .. 2.30	24 .. 1.90

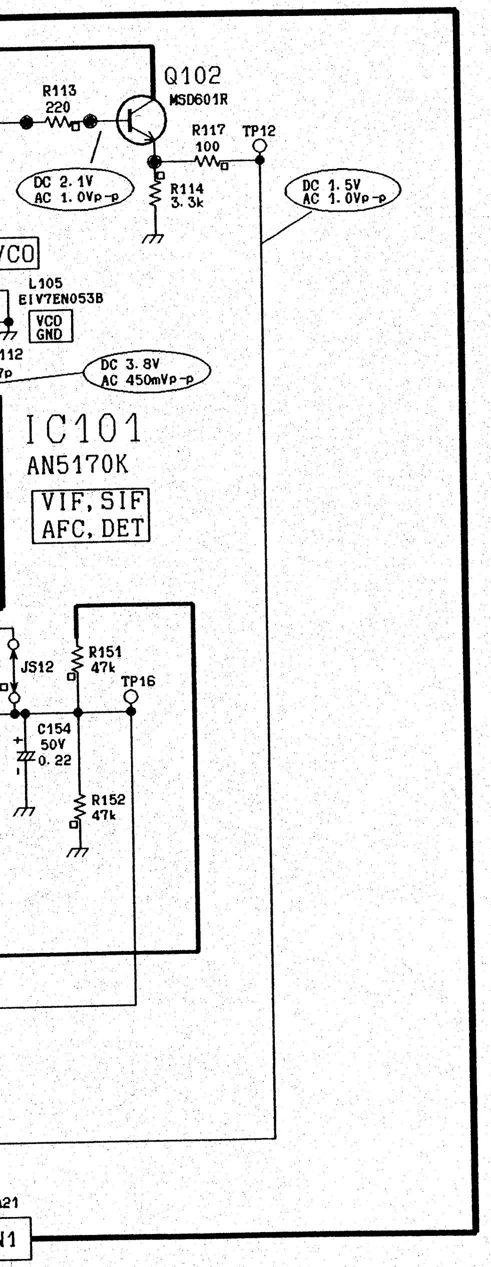
IC2201	
01 .. 0.00	15 .. 3.80
02 .. 4.70	16 .. 4.30
03 .. 4.80	17 .. 4.40
04 .. 2.60	18 .. 4.30
05 .. 4.80	19 .. 0.40
06 .. 4.50	20 .. 4.40
07 .. 2.60	21 .. 0.00
08 .. 8.70	22 .. 4.30
09 .. N.C	23 .. 0.40
10 .. 4.40	24 .. 4.40
11 .. 4.40	25 .. 4.30
12 .. 4.20	26 .. 4.30
13 .. 1.30	27 .. 5.10
14 .. 4.40	28 .. 5.30

N–Board Transistor

	B	C	E
Q102	4.80	2.00	1.40



B13
P23
NC (12V)
EHT OUT
EHT DET
12V
NC
GND
SOS
GND
30
0.5A
120mA
V STOP
20V
NC
Q3
V. PARA
SOS IN
EHT PROTECTOR IN
ABL OUT
ABL IN
H. V GND
Q4
NC
H PARA+V PARA
H3
H SAW
HP
H. V GND
15mA
29
D1980
MA165
R1966
560
A32
B4
A33
B5
ABL
V. STOP
BLK
V. PARA
E/W OUT
EHT OUT
SOS
H. GND
H. DRIVE
H GND
HP
H. SAW
H3
32V
32V
CONV. GND
CONV. GND
-32V
-32V
CONV. GND
CONV. GND



Q102
MSD601R
R113
220
R117
100
TP12
R114
3.3k
DC 2.1V
AC 1.0Vp-p
DC 1.5V
AC 1.0Vp-p
VCO
L105
EIV7EN053B
VCO
GND
DC 3.8V
AC 450mVp-p
IC101
AN5170K
VIF, SIF
AFC, DET
JS12
R151
47k
TP16
C154
50V
0.22
R152
47k
A21
N1

N–Board Voltage Measurements

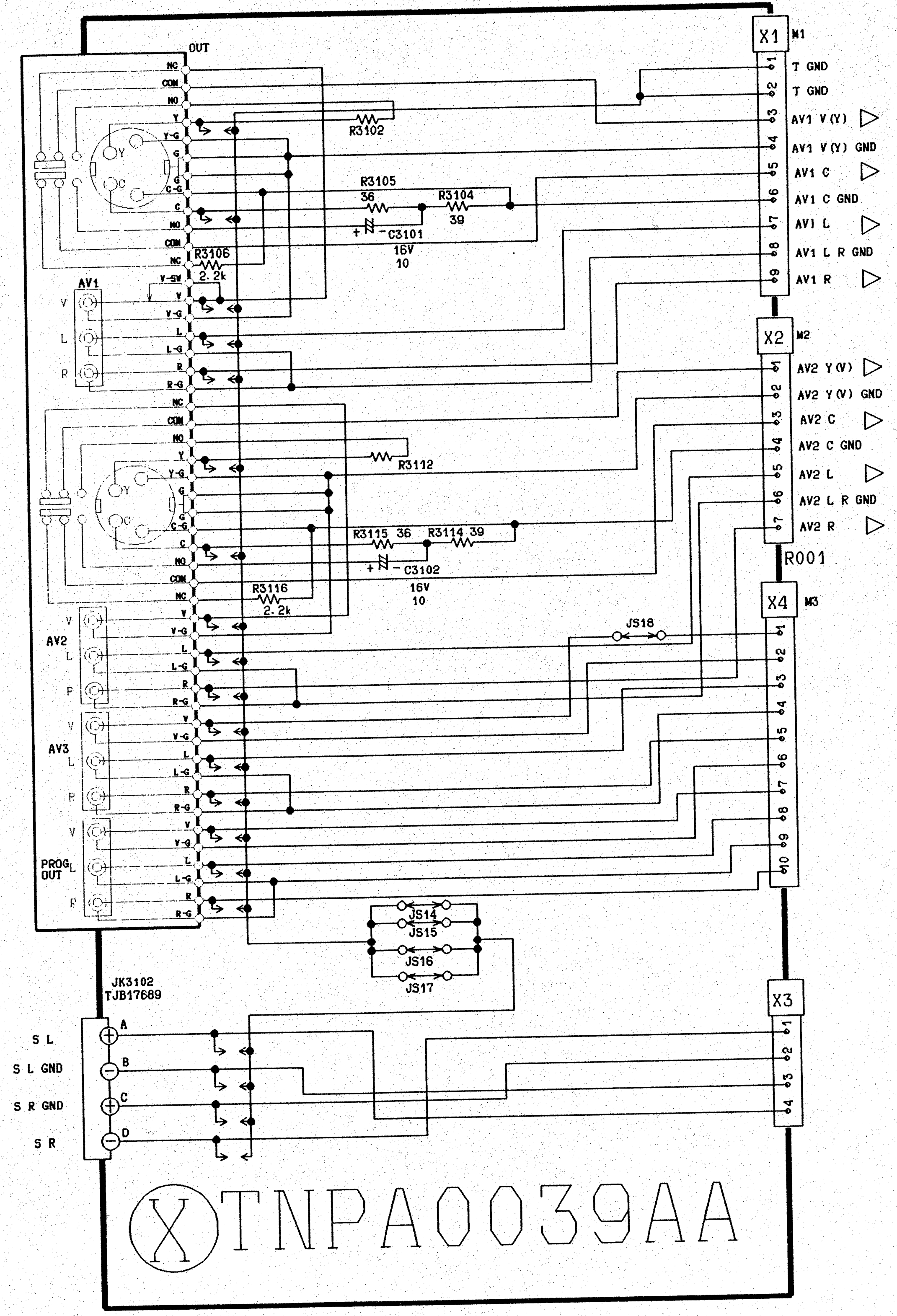
IC101			
01	2.20	13	3.50
02	2.10	14	3.50
03	2.10	15	2.60
04	2.60	16	4.90
05	2.40	17	2.00
06	2.60	18	1.90
07	2.50	19	4.80
08	0.00	20	4.80
09	2.60	21	1.90
10	1.10	22	N.C
11	2.60	23	2.40
12	2.30	24	1.90

IC2201			
01	0.00	15	3.80
02	4.70	16	4.30
03	4.80	17	4.40
04	2.60	18	4.30
05	4.80	19	0.40
06	4.50	20	4.40
07	2.60	21	0.00
08	8.70	22	4.30
09	N.C	23	0.40
10	4.40	24	4.40
11	4.40	25	4.30
12	4.20	26	4.30
13	1.30	27	5.10
14	4.40	28	5.30

N–Board Transistor

	B	C	E
Q102	4.80	2.00	1.40

X–Board Schematic
All Models

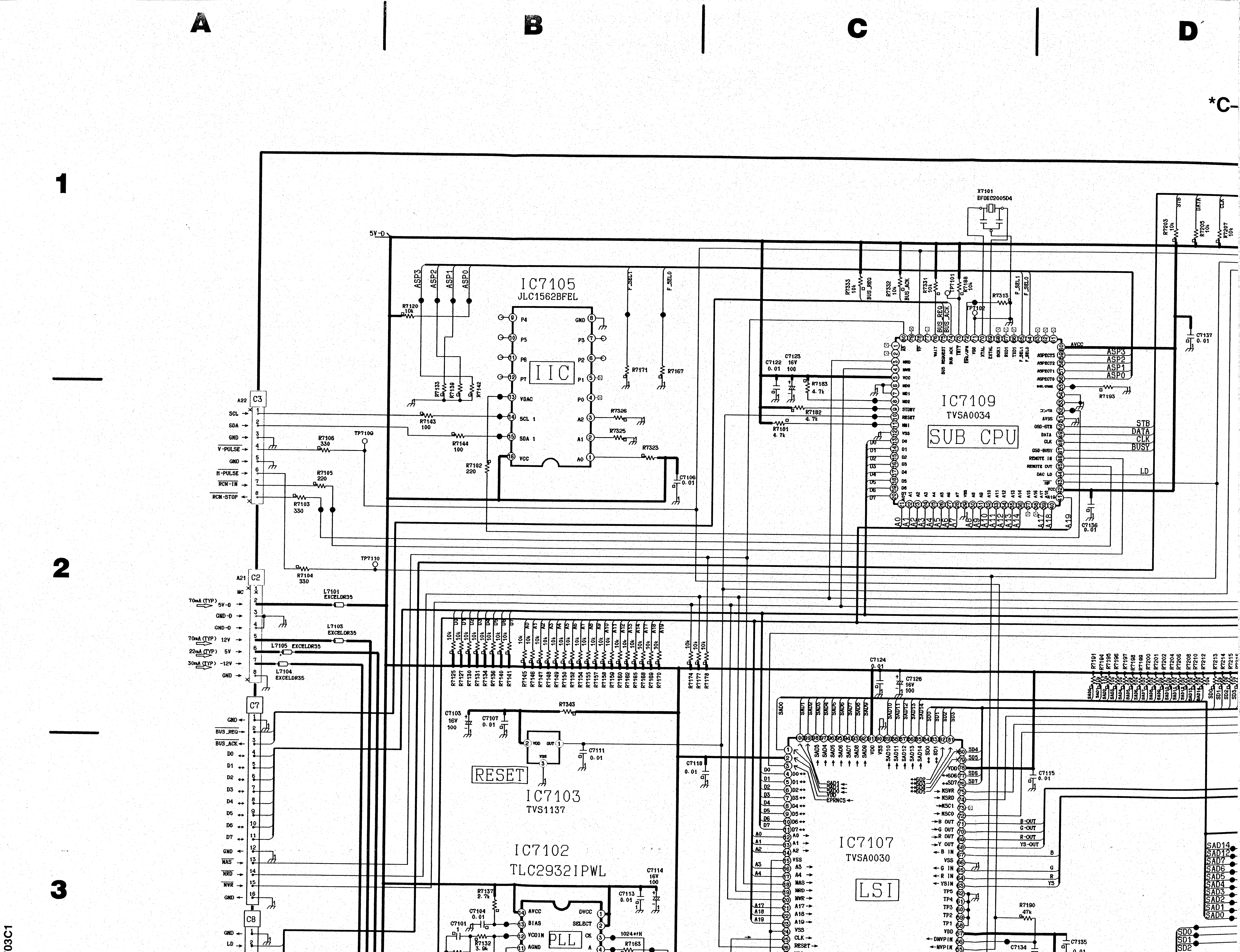


OUT
NC
COM
NO
Y
Y-G
C
C-G
R3102
R3105
36
R3104
39
C3101
16V
10
R3106
2.2k
AV1
V
L
R
Y-SW
R3112
R3115 36
R3114 39
C3102
16V
10
R3116
2.2k
AV2
AV3
PROG OUT
JS18
JS14
JS15
JS16
JS17
JK3102
TJB17689
S L
S L GND
S R GND
S R
A
B
C
D
X1
M1
T GND
T GND
AV1 V(Y)
AV1 V(Y) GND
AV1 C
AV1 C GND
AV1 L
AV1 L R GND
AV1 R
X2
M2
AV2 Y(V)
AV2 Y(V) GND
AV2 C
AV2 C GND
AV2 L
AV2 L R GND
AV2 R
R001
X4
M3
X3
X TNPA0039AA

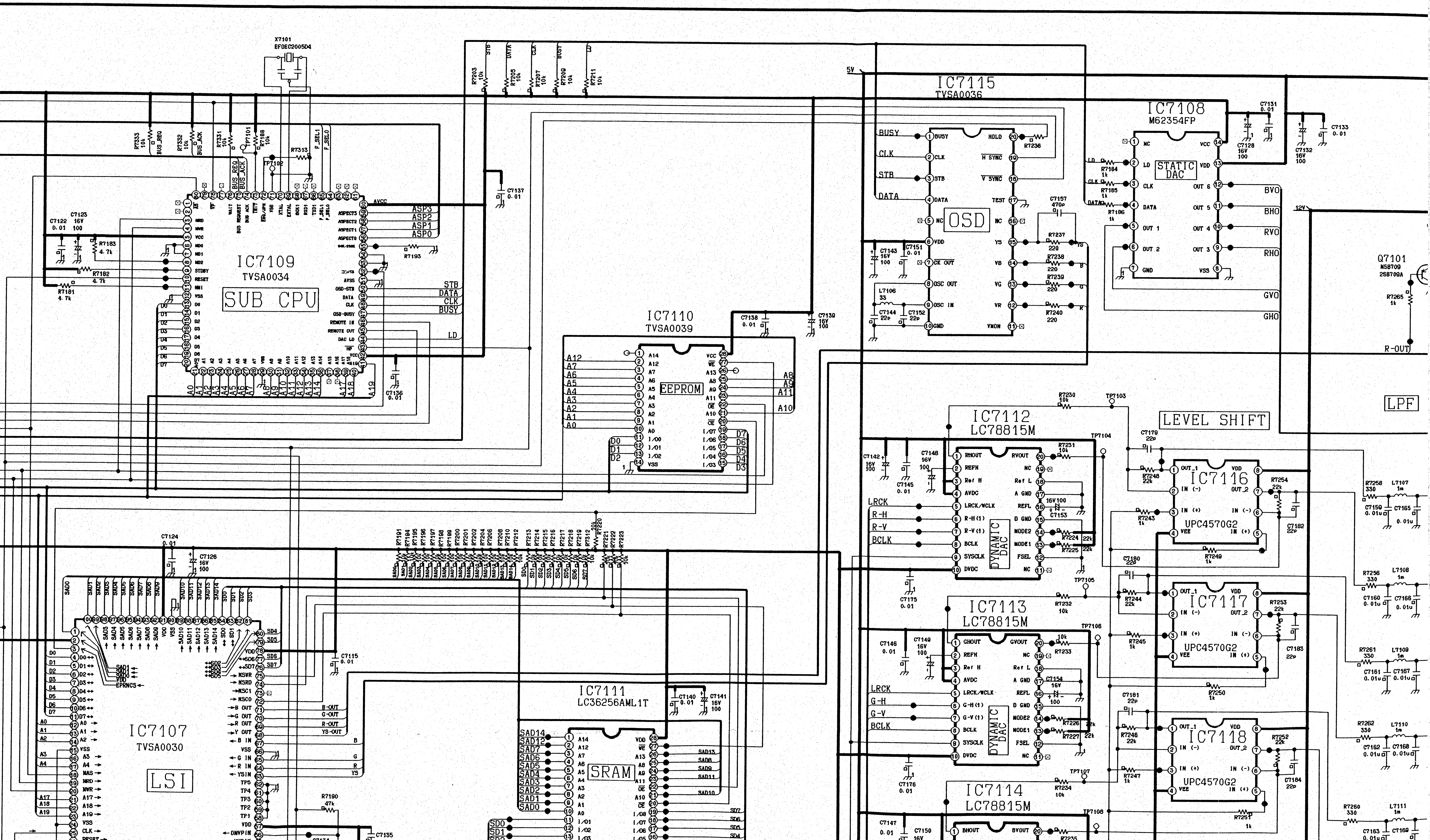
MTC9705703C1

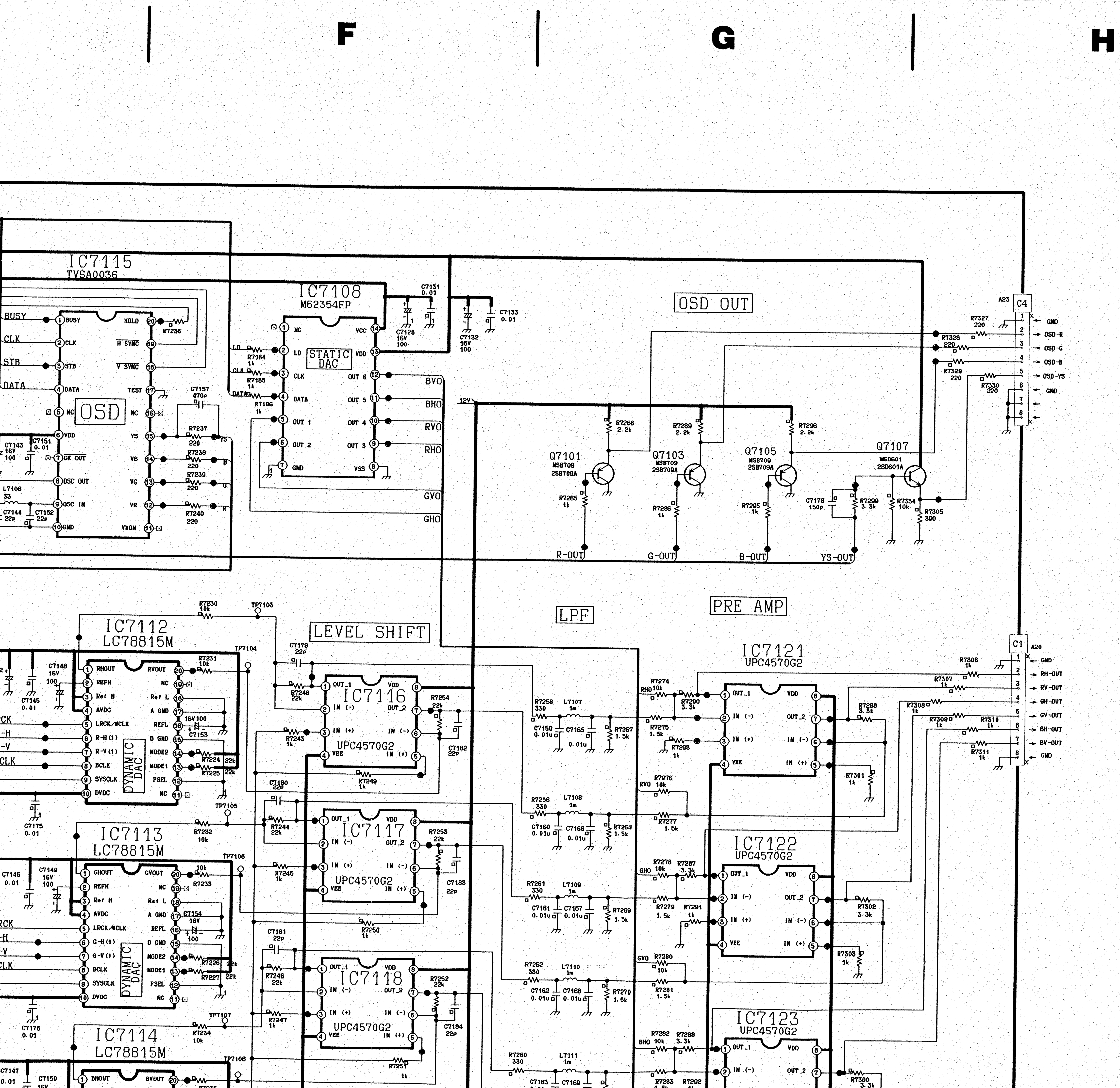
All Models

PT-51G50U/CU/LU/PU/TU PT-51G52V/CV/LV/PV/TV/XV PT-61G52V/CV

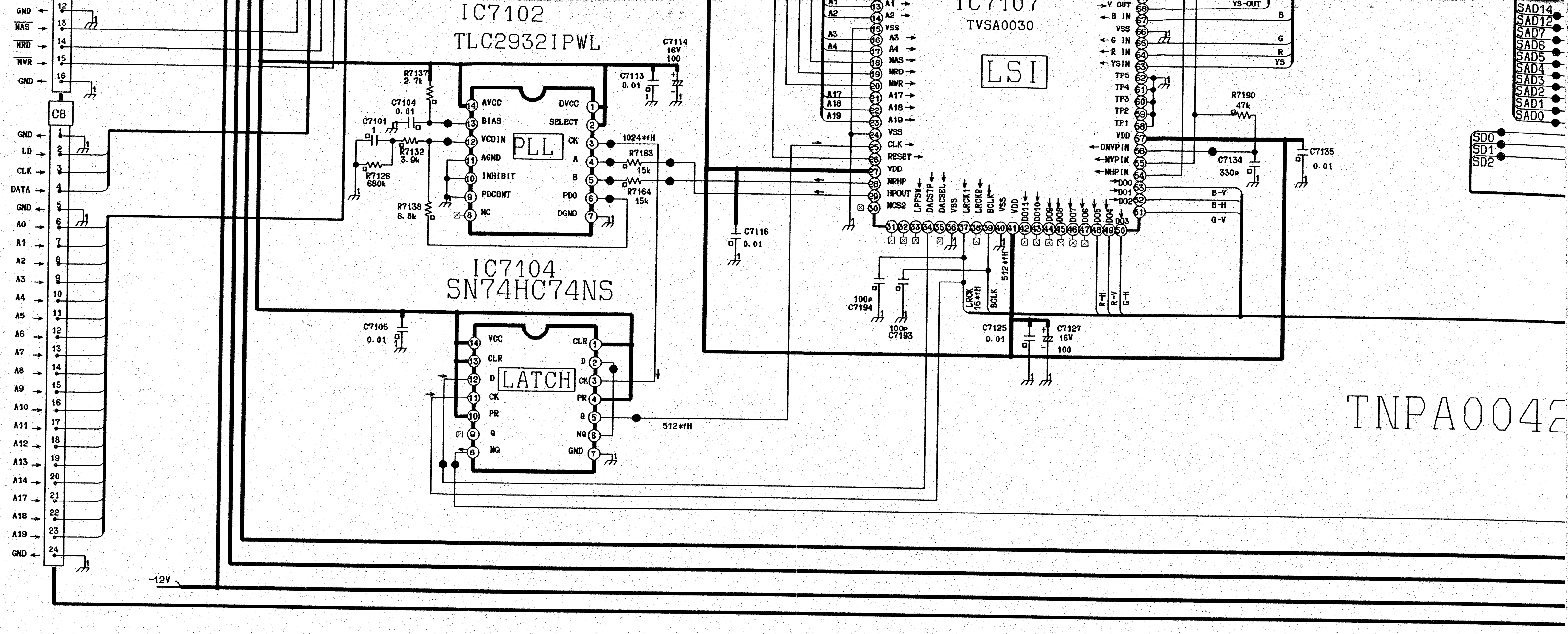

A
B
C
D
*C-
1
2
3
03C1
5Y-D
ASP3
ASP2
ASP1
ASP0
IC7105
JLC1562BFEL
IIC
F_SEL1
F_SEL0
X7101
EFOEC2005D4
IC7109
TVSA0034
SUB CPU
STB
DATA
CLK
BUSY
LD
BUS_REQ
BUS_ACK
TP7101
TP7102
TP7109
TP7110
C3
C2
C7
C8
SCL
SDA
GND
V-PULSE
H-PULSE
RCN-IN
RCN-STOP
70mA (TYP) 5V-D
GND-D
GND-D
70mA (TYP) 12V
22mA (TYP) 5V
30mA (TYP) -12V
L7101 EXCELDR35
L7103 EXCELDR35
L7105 EXCELDR35
L7104 EXCELDR35
IC7103
TVS1137
RESET
IC7102
TLC2932IPWL
PLL
IC7107
TVSA0030
LSI
B-OUT
G-OUT
R-OUT
YS-OUT
SAD14
SAD12
SAD7
SAD6
SAD5
SAD4
SAD3
SAD2
SAD1
SAD0
SD0
SD1
SD2
1024×fH

*C–Board Schematic
All Models


X7101
EF0EC2005D4
IC7109
TVSA0034
SUB CPU
IC7110
TVSA0039
EEPROM
IC7115
TVSA0036
OSD
IC7108
M62354FP
STATIC DAC
IC7107
TVSA0030
LSI
IC7111
LC36256AML1T
SRAM
IC7112
LC78815M
DYNAMIC DAC
IC7113
LC78815M
DYNAMIC DAC
IC7114
LC78815M
IC7116
UPC4570G2
IC7117
UPC4570G2
IC7118
UPC4570G2
LEVEL SHIFT
LPF
Q7101
NS8709
2SB709A
R-OUT
5V
12V
BUSY
CLK
STB
DATA
LD
BVO
BHO
RVO
RHO
GVO
GHO
LRCK
R-H
R-V
BCLK
G-H
G-V
ASP3
ASP2
ASP1
ASP0
BUS_REQ
BUS_ACK
F_SEL1
F_SEL0
TP7101
TP7102
TP7103
TP7104
TP7105
TP7106
TP7107
TP7108


F
G
H
IC7115
TVSA0036
OSD
BUSY
CLK
STB
DATA
HOLD
H SYNC
V SYNC
TEST
VDD
CK OUT
OSC OUT
OSC IN
GND
YS
VB
VG
VR
VMON
R7236
C7157 470p
R7237 220
R7238 220
R7239 220
R7240 220
C7143 16V 100
C7151 0.01
L7106 33
C7144 22p
C7152 22p
IC7108
M62354FP
STATIC DAC
NC
LD
CLK
DATA
OUT 1
OUT 2
GND
VCC
VDD
OUT 6
OUT 5
OUT 4
OUT 3
VSS
R7184 1k
R7185 1k
R7186 1k
C7131 0.01
C7128 16V 100
C7132 16V 100
C7133 0.01
BVO
BHO
RVO
RHO
GVO
GHO
12V
OSD OUT
Q7101 MSB709 2SB709A
Q7103 MSB709 2SB709A
Q7105 MSB709 2SB709A
Q7107 MSD601 2SD601A
R7266 2.2k
R7289 2.2k
R7296 2.2k
R7265 1k
R7286 1k
R7295 1k
C7178 150p
R7299 3.3k
R7334 10k
R7305 390
R-OUT
G-OUT
B-OUT
YS-OUT
A23
C4
R7327 220
R7328 220
R7329 220
R7330 220
GND
OSD-R
OSD-G
OSD-B
OSD-YS
LPF
PRE AMP
LEVEL SHIFT
IC7112
LC78815M
IC7113
LC78815M
IC7114
LC78815M
DYNAMIC DAC
RHOUT
REFH
Ref H
AVDC
LRCK/WCLK
R-H(1)
R-V(1)
BCLK
SYSCLK
DVDC
RVOUT
NC
Ref L
A GND
REFL
D GND
MODE2
MODE1
FSEL
GHOUT
GVOUT
G-H(1)
G-V(1)
BHOUT
BVOUT
R7230 10k
TP7103
TP7104
TP7105
TP7106
TP7107
TP7108
R7231 10k
R7232 10k
R7233
R7234 10k
R7224 22k
R7225 22k
R7226 22k
R7227 22k
C7148 16V 100
C7145 0.01
C7153 16V 100
C7154 16V 100
C7175 0.01
C7146 0.01
C7149 16V 100
C7176 0.01
C7147 0.01
C7150 16V
IC7116
IC7117
IC7118
UPC4570G2
OUT_1
IN (-)
IN (+)
VEE
VDD
OUT_2
C7179 22p
C7180 22p
C7181 22p
R7248 22k
R7244 22k
R7246 22k
R7243 1k
R7245 1k
R7247 1k
R7249 1k
R7250 1k
R7251 1k
R7254 22k
R7253 22k
R7252 22k
C7182 22p
C7183 22p
C7184 22p
R7258 330
R7256 330
R7261 330
R7262 330
R7260 330
L7107 1m
L7108 1m
L7109 1m
L7110 1m
L7111 1m
C7159 0.01u
C7165 0.01u
C7160 0.01u
C7166 0.01u
C7161 0.01u
C7167 0.01u
C7162 0.01u
C7168 0.01u
C7163
C7169
R7267 1.5k
R7268 1.5k
R7269 1.5k
R7270 1.5k
IC7121
IC7122
IC7123
RHO
RVO
GHO
GVO
BHO
R7274 10k
R7290 3.3k
R7275 1.5k
R7293 1k
R7276 10k
R7277 1.5k
R7278 10k
R7287 3.3k
R7279 1.5k
R7291 1k
R7280 10k
R7281 1.5k
R7282 10k
R7288 3.3k
R7283
R7292
R7298 3.3k
R7301 1k
R7302 3.3k
R7303 1k
R7300 3.3k
C1
A20
R7306 1k
R7307 1k
R7308 1k
R7309 1k
R7310 1k
R7311 1k
RH-OUT
RV-OUT
GH-OUT
GV-OUT
BH-OUT
BV-OUT

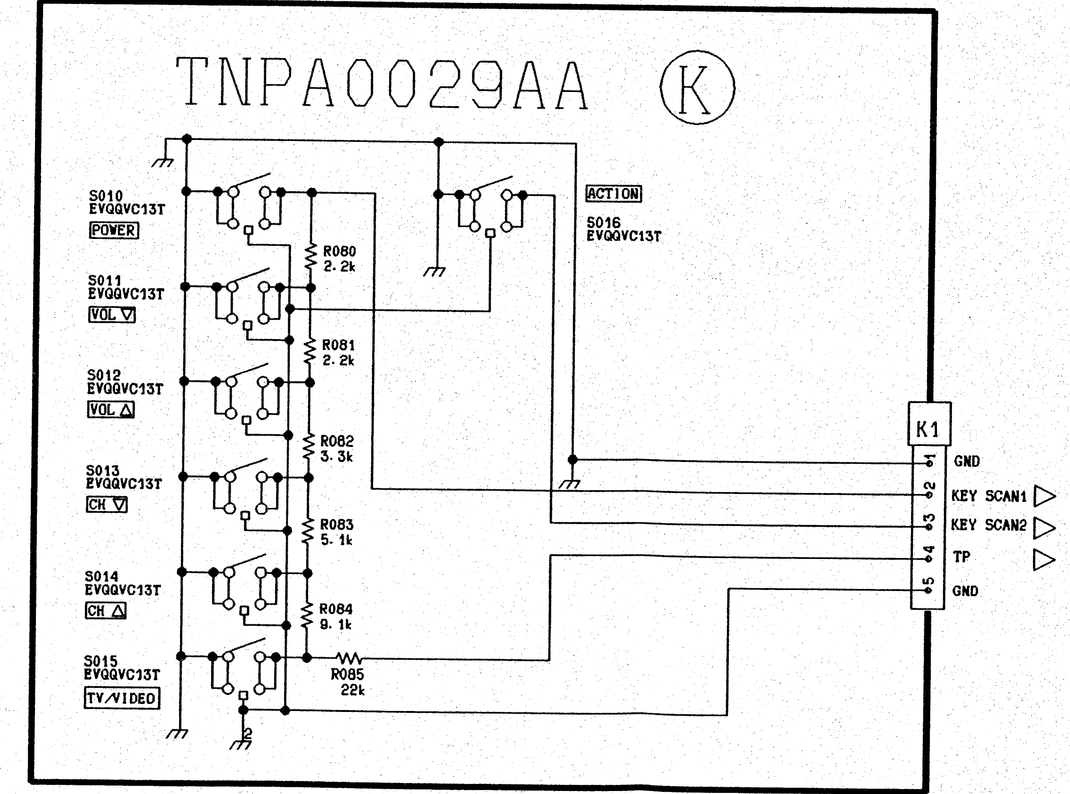
3

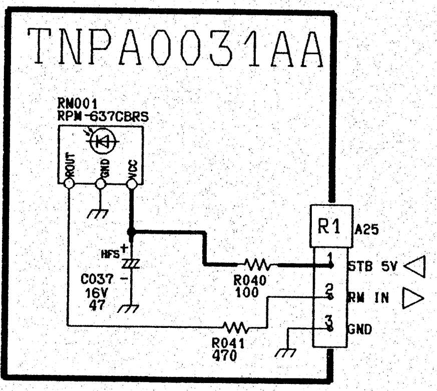

IC7102
TLC2932IPWL
PLL
IC7104
SN74HC74NS
LATCH
IC7107
TVSA0030
LSI
C8
TNPA0042
-12V
1024fH
512fH
R7137 2.7k
C7104 0.01
C7101
R7132 3.9k
R7126 680k
R7138 6.8k
R7163 15k
R7164 15k
C7113 0.01
C7114 16V 100
C7105 0.01
C7116 0.01
C7194 100p
C7193 100p
C7125 0.01
C7127 16V 100
C7134 330p
C7135 0.01
R7190 47k
AVCC
BIAS
VCOIN
AGND
INHIBIT
PDCONT
NC
DVCC
SELECT
CK
A
B
PDO
DGND
VCC
CLR
D
CK
PR
Q
NQ
GND
GND
NAS
NRD
NWR
LD
CLK
DATA
A0
A1
A2
A3
A4
A5
A6
A7
A8
A9
A10
A11
A12
A13
A14
A17
A18
A19
Y OUT
B IN
VSS
G IN
R IN
YSIN
TP5
TP4
TP3
TP2
TP1
VDD
DNVPIN
NVPIN
NHPIN
DO0
DO1
DO2
YS-OUT
B
G
R
YS
B-V
B-H
G-V
R-H
R-V
G-H
RESET
NRHP
HPOUT
NCS2
LRCK
BCLK
SAD14
SAD12
SAD7
SAD6
SAD5
SAD4
SAD3
SAD2
SAD1
SAD0
SD0
SD1
SD2

4

5

A2


TNPA0029AA
K
S010 EVQQVC13T POWER
S011 EVQQVC13T VOL ▽
S012 EVQQVC13T VOL △
S013 EVQQVC13T CH ▽
S014 EVQQVC13T CH △
S015 EVQQVC13T TV/VIDEO
S016 EVQQVC13T
ACTION
R080 2.2k
R081 2.2k
R082 3.3k
R083 5.1k
R084 9.1k
R085 22k
K1
1 GND
2 KEY SCAN1
3 KEY SCAN2
4 TP
5 GND

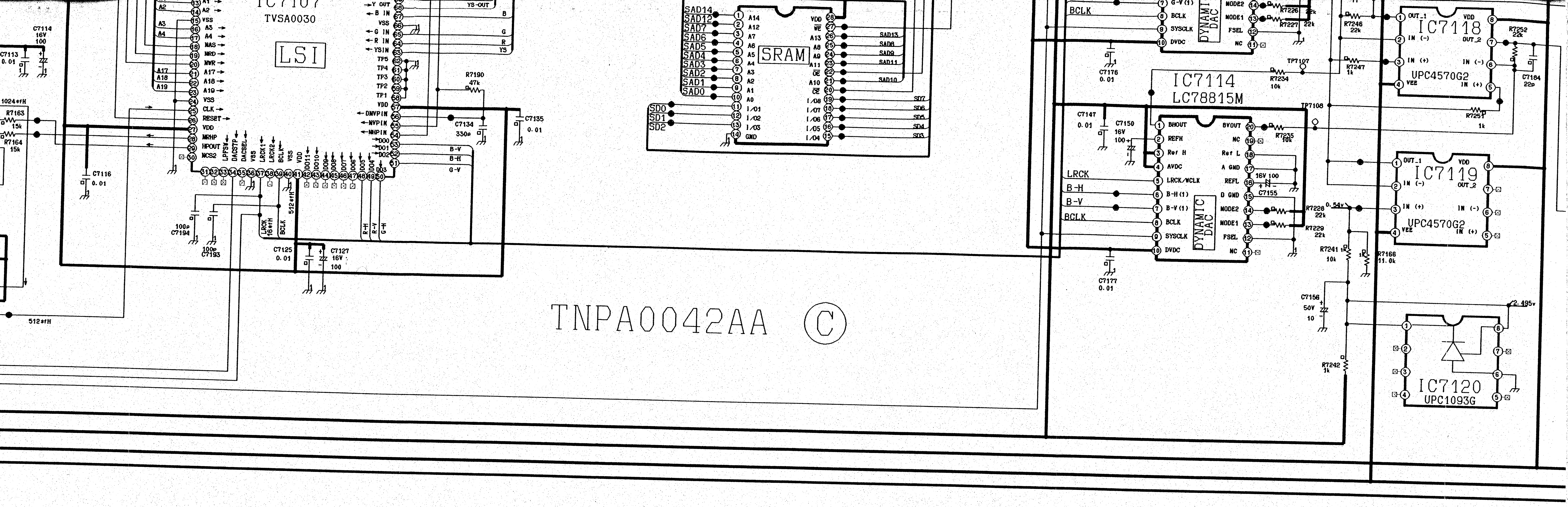

TNPA0031AA
RM001 RPM-637CBRS
VOUT
GND
VCC
HFS
C037 16V 47
R040 100
R041 470
R1
A25
1 STB 5V
2 RM IN
3 GND

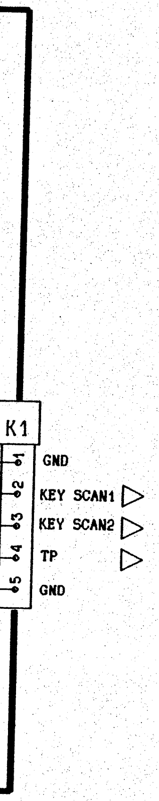
C–Board V

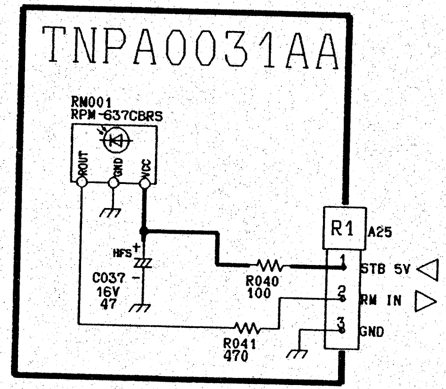
A20 to C1
01 . . . . 0.00
02 . . . –1.30
03 . . . . 0.00
04 . . . –0.20
05 . . . . 0.00
06 . . . . 0.80
07 . . . . 0.00
08 . . . . 0.00

A2
01 .
02 .
03 .
04 .
05 .
06 .
07 .
08 .

Not serviceable. Returned


IC7107
TVSA0030
LSI
C7114 16V 100
C7113 0.01
R7163 15k
R7164 15k
1024fH
C7116 0.01
100p C7194
100p C7193
C7125 0.01
C7127 16V 100
C7134 330p
C7135 0.01
R7190 47k
512fH
VSS
RESET
CLK
VDD
NRHP
HPOUT
NCS2
LPFSW
DACSTP
DACSEL
LRCK1
LRCK2
BCLK
YS-OUT
Y OUT
B IN
G IN
R IN
YSIN
DNVPIN
NVPIN
NHPIN
B-V
B-H
G-V
R-H
R-Y
G-H
SAD14
SAD12
SAD7
SAD6
SAD5
SAD4
SAD3
SAD2
SAD1
SAD0
SD0
SD1
SD2
SRAM
SAD13
SAD8
SAD9
SAD11
SAD10
SD7
SD6
SD5
SD4
SD3
TNPA0042AA
C
BCLK
LRCK
B-H
B-V
DYNAMIC DAC
IC7114
LC78815M
C7147 0.01
C7150 16V 100
C7176 0.01
C7177 0.01
C7155
R7234 10k
R7235 10k
R7228 22k
R7229 22k
R7226 22k
R7227 22k
TP7107
TP7108
IC7118
UPC4570G2
R7246 22k
R7247 1k
R7252 22k
C7184 22p
R7251 1k
IC7119
UPC4570G2
R7241 10k
R7166 11.0k
0.54V
C7156 50V 10
R7242 1k
2.495V
IC7120
UPC1093G


K1
GND
KEY SCAN1
KEY SCAN2
TP
GND


TNPA0031AA
RM001
RPM-637CBRS
VOUT
GND
VCC
HFS
C037 16V 47
R040 100
R041 470
R1
A25
STB 5V
RM IN
GND

C–Board Voltage Measurements

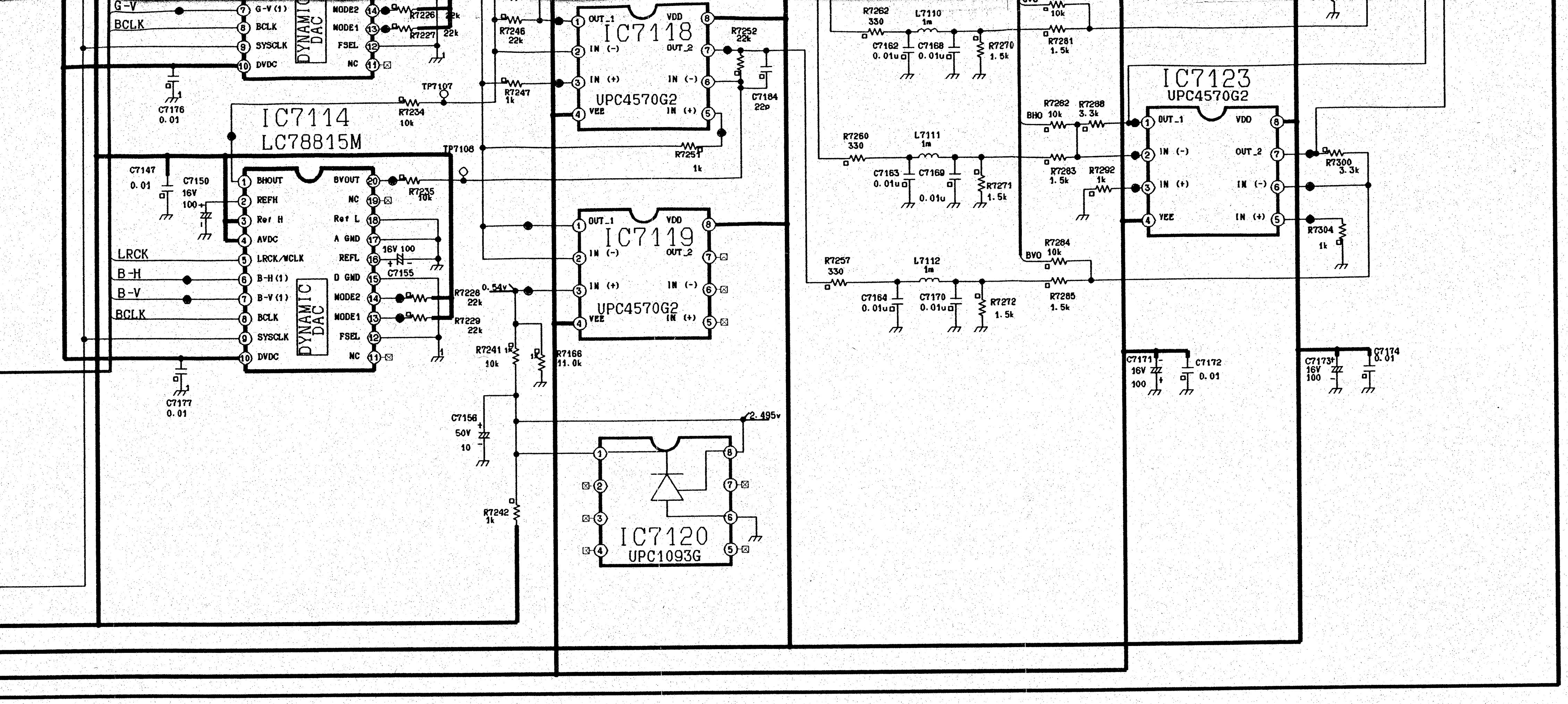
A20 to C1	
01	0.00
02	–1.30
03	0.00
04	–0.20
05	0.00
06	0.80
07	0.00
08	0.00

A21 to C2	
01	5.30
02	4.90
03	0.00
04	0.00
05	12.00
06	4.90
07	–12.00
08	0.00

A22 to C3	
01	5.00
02	4.90
03	0.00
04	4.70
05	0.00
06	3.70
07	4.90
08	4.90

A23 to C4	
01	0.00
02	0.60
03	0.60
04	0.60
05	0.00
06	0.00
07	0.00
08	0.00

Not serviceable. Returned to authorized Factory Service Center for repair.



IC7114
LC78815M
DYNAMIC DAC
IC7118
UPC4570G2
IC7119
UPC4570G2
IC7120
UPC1093G
IC7123
UPC4570G2
G-V
BCLK
LRCK
B-H
B-V
BHOUT
REFH
Ref H
AVDC
LRCK/WCLK
B-H(1)
B-V(1)
SYSCLK
DVDC
BVOUT
NC
Ref L
A GND
REFL
D GND
MODE2
MODE1
FSEL
OUT_1
IN (-)
IN (+)
VEE
VDD
OUT_2
TP7107
TP7108
BHO
BVO
0.54v
2.495v
C7176 0.01
C7177 0.01
C7147 0.01
C7150 16V 100
C7155 16V 100
R7234 10k
R7235 10k
R7226 22k
R7227 22k
R7228 22k
R7229 22k
R7241 10k
R7166 11.0k
R7242 1k
C7156 50V 10
R7246 22k
R7247 1k
R7251 1k
R7252 22k
C7184 22p
R7262 330
L7110 1m
C7162 0.01u
C7168 0.01u
R7270 1.5k
R7260 330
L7111 1m
C7163 0.01u
C7169 0.01u
R7271 1.5k
R7257 330
L7112 1m
C7164 0.01u
C7170 0.01u
R7272 1.5k
R7281 1.5k
R7282 10k
R7288 3.3k
R7283 1.5k
R7292 1k
R7284 10k
R7285 1.5k
R7300 3.3k
R7304 1k
C7171 16V 100
C7172 0.01
C7173 16V 100
C7174 0.01

ts

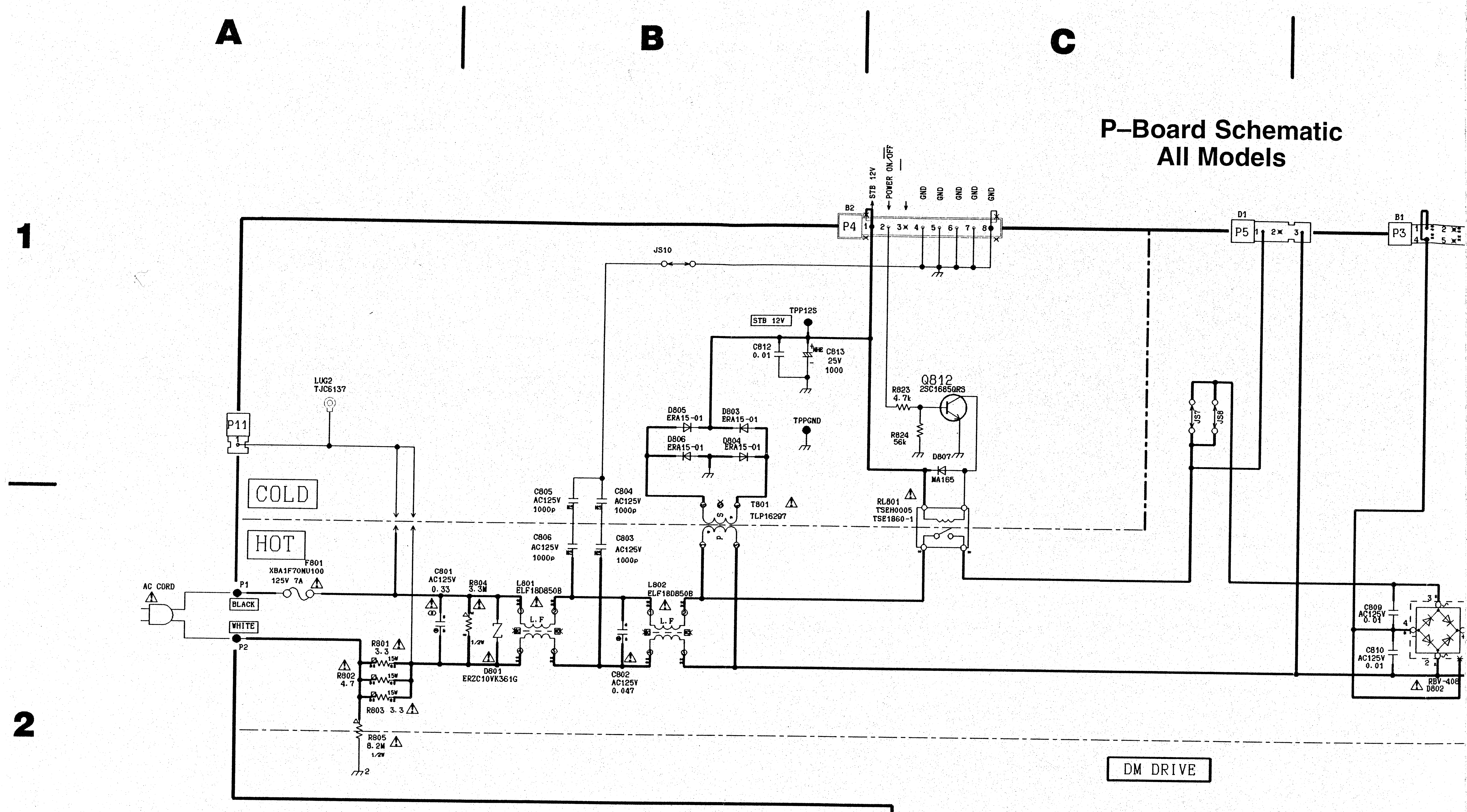
to C4
. 0.00
. 0.60
. 0.60
. 0.60
. 0.00
. 0.00
. 0.00
. 0.00

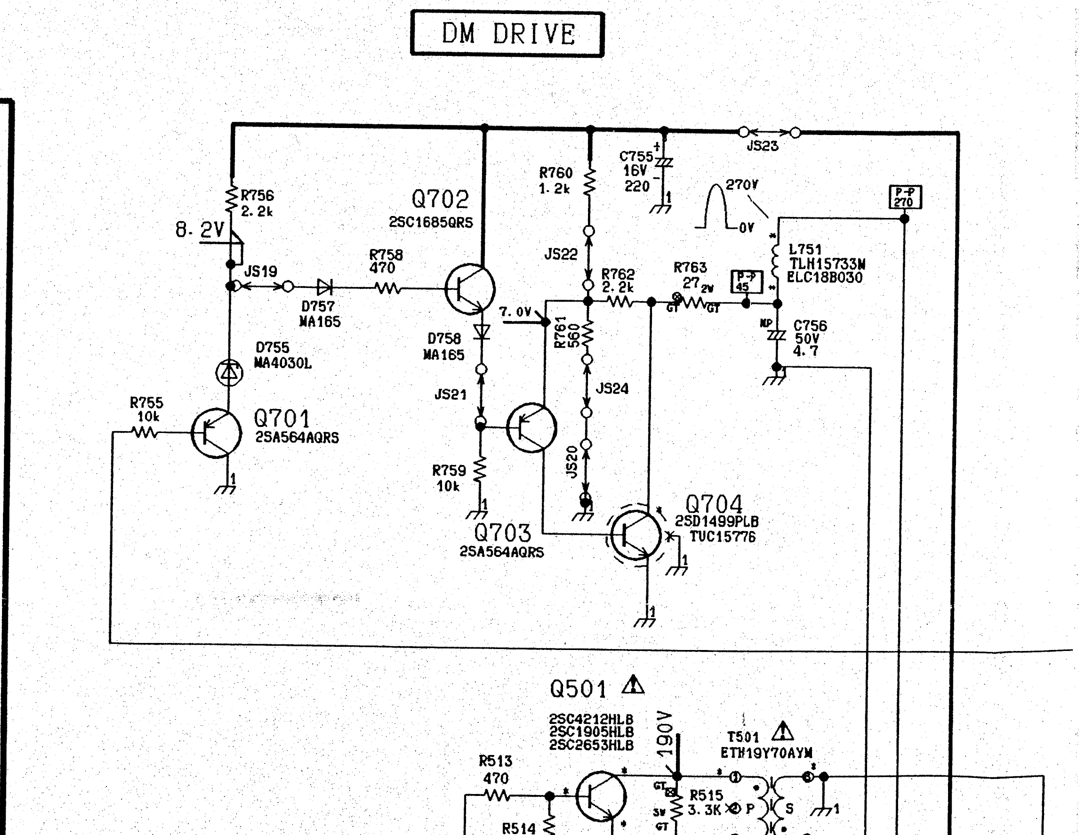
IMPORTANT SAFETY NOTICE

THIS SCHEMATIC DIAGRAM INCORPORATES SPECIAL FEATURES THAT ARE IMPORTANT FOR PROTECTION FROM X-RADIATION, FIRE AND ELECTRICAL SHOCK HAZARDS. WHEN SERVICING IT IS ESSENTIAL THAT ONLY MANUFACTURERS SPECIFIED PARTS BE USED FOR THE CRITICAL COMPONENTS DESIGNATED WITH A ⚠ IN THE SCHEMATIC.

nter for repair.

P–Board Schematic All Models


A
B
C
1
2
P4
B2
STB 12V
POWER ON/OFF
GND
GND
GND
GND
GND
P5
D1
P3
B1
JS10
STB 12V
TPP12S
C812 0.01
C813 25V 1000
Q812 2SC1685QRS
R823 4.7k
R824 56k
D807
MA165
D805 ERA15-01
D803 ERA15-01
D806 ERA15-01
D804 ERA15-01
TPPGND
JS7
JS8
LUG2 TJC6137
P11
COLD
HOT
C805 AC125V 1000p
C804 AC125V 1000p
C806 AC125V 1000p
C803 AC125V 1000p
T801 TLP16297
RL801 TSEH0005 TSE1860-1
AC CORD
P1
BLACK
WHITE
P2
F801 XBA1F70NU100 125V 7A
C801 AC125V 0.33
R804 3.3M
L801 ELF18D850B
L802 ELF18D850B
L.F
L.F
D801 ERZC10VK361G
C802 AC125V 0.047
R801 3.3
R802 4.7
R803 3.3
R805 8.2M 1/2W
C809 AC125V 0.01
C810 AC125V 0.01
RBV-408
D802


DM DRIVE
JS23
C755 16V 220
R760 1.2k
270V
0V
P-P 270
Q702 2SC1685QRS
R756 2.2k
8.2V
JS19
D757 MA165
R758 470
JS22
R762 2.2k
R763 27 2W
P-P 45
L751 TLH15733M ELC18B030
7.0V
D758 MA165
R761 560
C756 50V 4.7
D755 MA4030L
JS21
JS24
R755 10k
Q701 2SA564AQRS
R759 10k
JS20
Q703 2SA564AQRS
Q704 2SD1499PLB TUC15776
Q501
2SC4212HLB 2SC1905HLB 2SC2653HLB
190V
T501 ETH19Y70AYM
R513 470
R515 3.3K
R514
3
P
S

P–Board Voltage Measurements

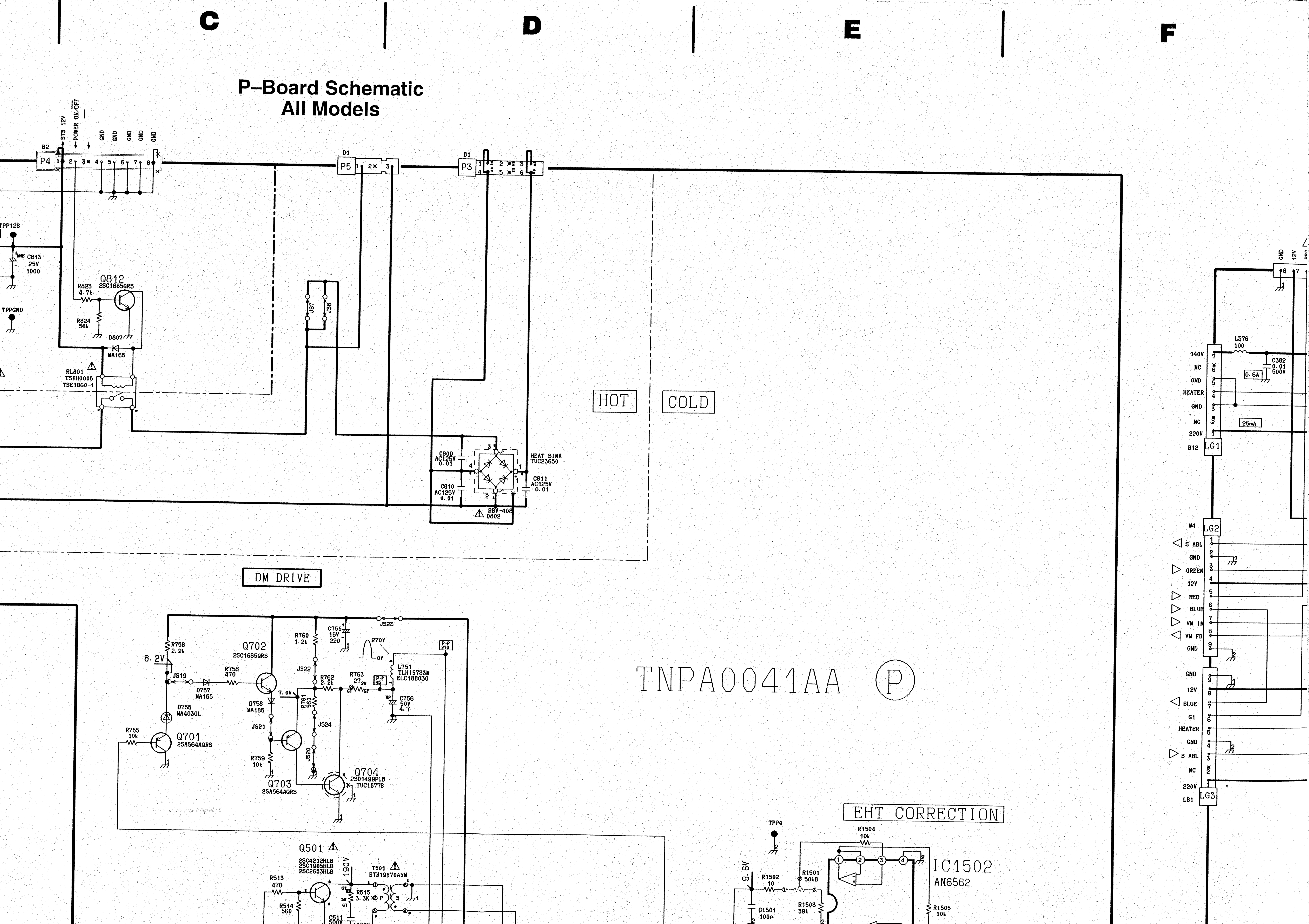
IC1502

01 .. 5.00
02 .. 5.00
03 .. 5.00
04 .. 0.00
05 .. 5.00
06 .. 5.00
07 .. 2.90
08 . 12.00

P–Board Transistors

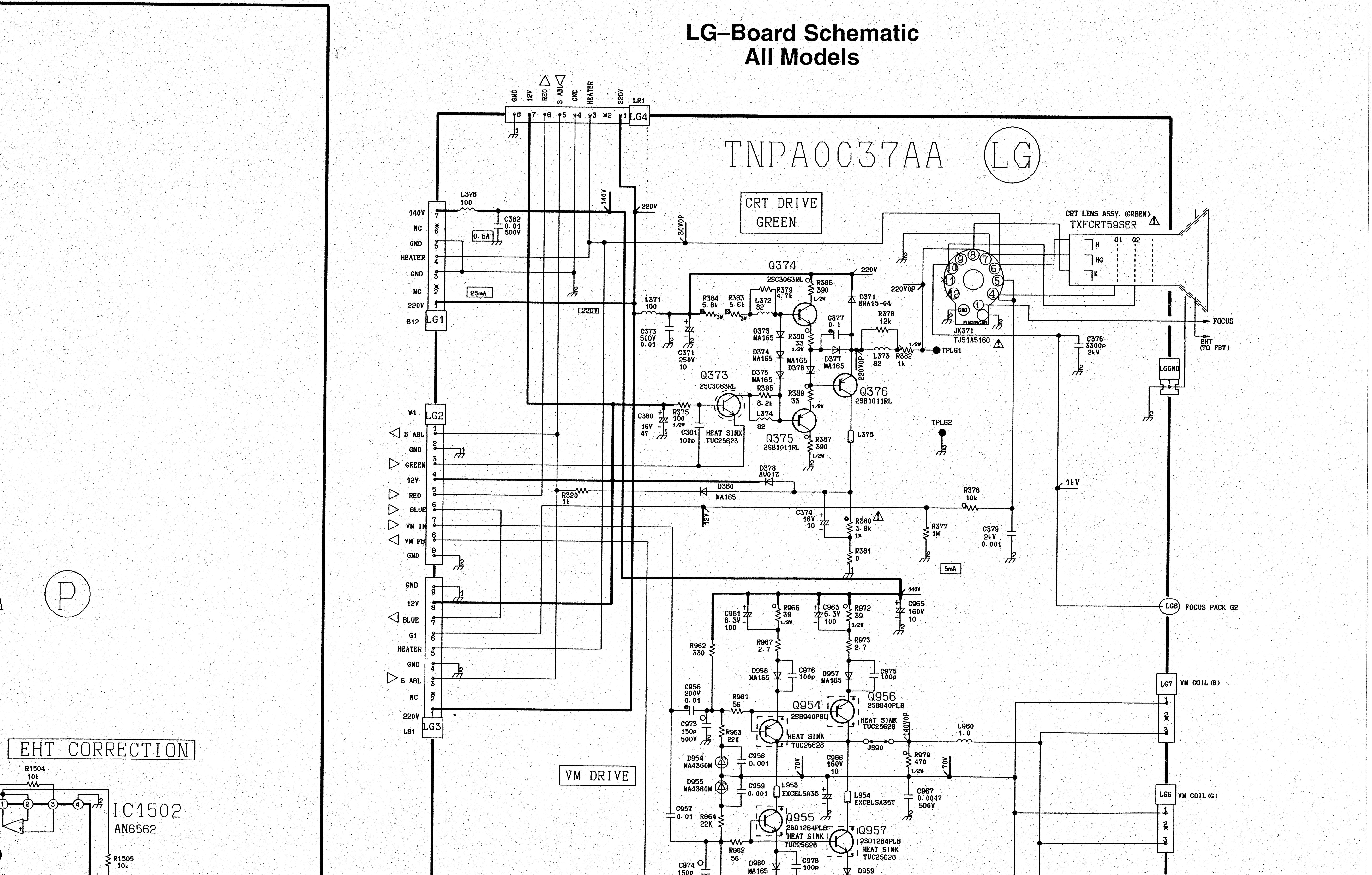
	B	C	E
Q501	0.4	90.1	0.00

P–Board Schematic All Models


C
D
E
F
B2
P4
STB 12V
POWER ON/OFF
GND
D1
P5
B1
P3
TPP12S
C813 25V 1000
TPPGND
Q812 2SC1685QRS
R823 4.7k
R824 56k
D807 MA165
RL801 TSEH0005 TSE1860-1
JS7
JS8
C809 AC125V 0.01
C810 AC125V 0.01
HEAT SINK TUC23650
C811 AC125V 0.01
RBV-408 D802
HOT
COLD
DM DRIVE
R756 2.2k
8.2V
JS19
R758 470
D757 MA165
Q702 2SC1685QRS
7.0V
D758 MA165
D755 MA4030L
R755 10k
Q701 2SA564AQRS
JS21
R759 10k
Q703 2SA564AQRS
R760 1.2k
C755 16V 220
JS22
R761 560
R762 2.2k
JS24
JS20
JS23
270V
0V
R763 27 2W
L751 TLH15733M ELC18B030
C756 50V 4.7
Q704 2SD1499PLB TUC15776
Q501
2SC4212HLB 2SC1905HLB 2SC2653HLB
190V
R513 470
R514 560
C511 500V
T501 ETH19Y70AYM
R515 3.3K
TNPA0041AA
P
EHT CORRECTION
TPP4
9.6V
R1502 10
C1501 100p
R1501 50kB
R1503 39k
R1504 10k
IC1502 AN6562
R1505 10k
L376 100
C382 0.01 500V
0.6A
25mA
140V
NC
GND
HEATER
220V
B12
LG1
W4
LG2
S ABL
GREEN
12V
RED
BLUE
VM IN
VM FB
G1
LB1
LG3

E F G H

LG–Board Schematic
All Models


TNPA0037AA
LG
CRT DRIVE GREEN
VM DRIVE
EHT CORRECTION
P
IC1502
AN6562
R1504 10k
R1505 10k
LR1
LG4
GND
12V
RED
S ABL
GND
HEATER
220V
LG1
140V
NC
GND
HEATER
GND
NC
220V
B12
L376 100
C382 0.01 500V
0.6A
25mA
140V
220V
30V0P
LG2
W4
S ABL
GND
GREEN
12V
RED
BLUE
VM IN
VM FB
GND
LG3
GND
12V
BLUE
G1
HEATER
GND
S ABL
NC
220V
LB1
Q374
2SC3063RL
R386 390 1/2W
R379 4.7k
R384 5.6k 3W
R383 5.6k 3W
L372 82
L371 100
C373 500V 0.01
C371 250V 10
D371 ERA15-04
C377 0.1
R378 12k
D373 MA165
D374 MA165
D375 MA165
R388 33 1/2W
MA165 D376
D377 MA165
L373 82
R382 1k
TPLG1
220V0P
Q373
2SC3063RL
R385 8.2k
L374 82
R389 33 1/2W
Q376
2SB1011RL
Q375
2SB1011RL
R387 390 1/2W
L375
C380 16V 47
R375 100 1/2W
C381 100p
HEAT SINK TUC25623
TPLG2
D378 AU01Z
D360 MA165
R320 1k
12V
C374 16V 10
R380 3.9k 1W
R381 0
R376 10k
R377 1M
C379 2kV 0.001
5mA
1kV
CRT LENS ASSY. (GREEN)
TXFCRT59SER
H
HG
K
G1
G2
JK371
TJS1A5160
GND
FOCUS
FOCUS
EHT (TO FBT)
C376 3300p 2kV
LGGND
LG8
FOCUS PACK G2
140V
C961 6.3V 100
R966 39 1/2W
C963 6.3V 100
R972 39 1/2W
C965 160V 10
R962 330
R967 2.7
R973 2.7
D958 MA165
C976 100p
D957 MA165
C975 100p
Q954
2SB940PBL
Q956
2SB940PLB
HEAT SINK TUC25628
C956 200V 0.01
R981 56
C973 150p 500V
R963 22K
J590
L960 1.0
140V0P
D954 MA4360M
C958 0.001
70V
C966 160V 10
R979 470 1/2W
70V
D955 MA4360M
C959 0.001
L953 EXCELSA35
L954 EXCELSA35T
C967 0.0047 500V
C957 0.01
R964 22K
Q955
2SD1264PLB
Q957
2SD1264PLB
HEAT SINK TUC25628
R982 56
C974 150p
D960 MA165
C978 100p
D959
LG7
VM COIL (B)
LG6
VM COIL (G)

07 . .	2.90
08 .	12.00

3

P–Board Transistors

	B	C	E
Q501	0.4	90.1	0.00
Q701	3.6	0.00	4.20
Q702	6.70	12.00	5.90
Q703	5.30	0.50	6.00
Q704	0.50	20.40	0.00
Q812	0.70	0.00	0.00

LG–Board Transistors

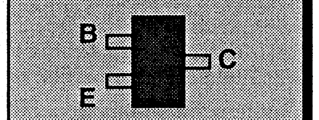
	B	C	E
Q373	11.90	173.10	11.30
Q374	175.00	220.10	174.70
Q375	173.10	0.80	174.00
Q376	174.10	1.60	174.60
Q954	137.60	75.50	137.80
Q955	0.70	75.50	0.40
Q956	137.60	75.50	137.80
Q957	0.70	75.50	0.40

4

LB–Board Transistors

	B	C	E
Q393	11.80	176.40	11.30
Q394	178.30	220.10	178.50
Q395	176.40	0.80	177.70
Q396	177.80	1.90	178.30

CHIP TRANSISTOR LEAD DESIGNATION



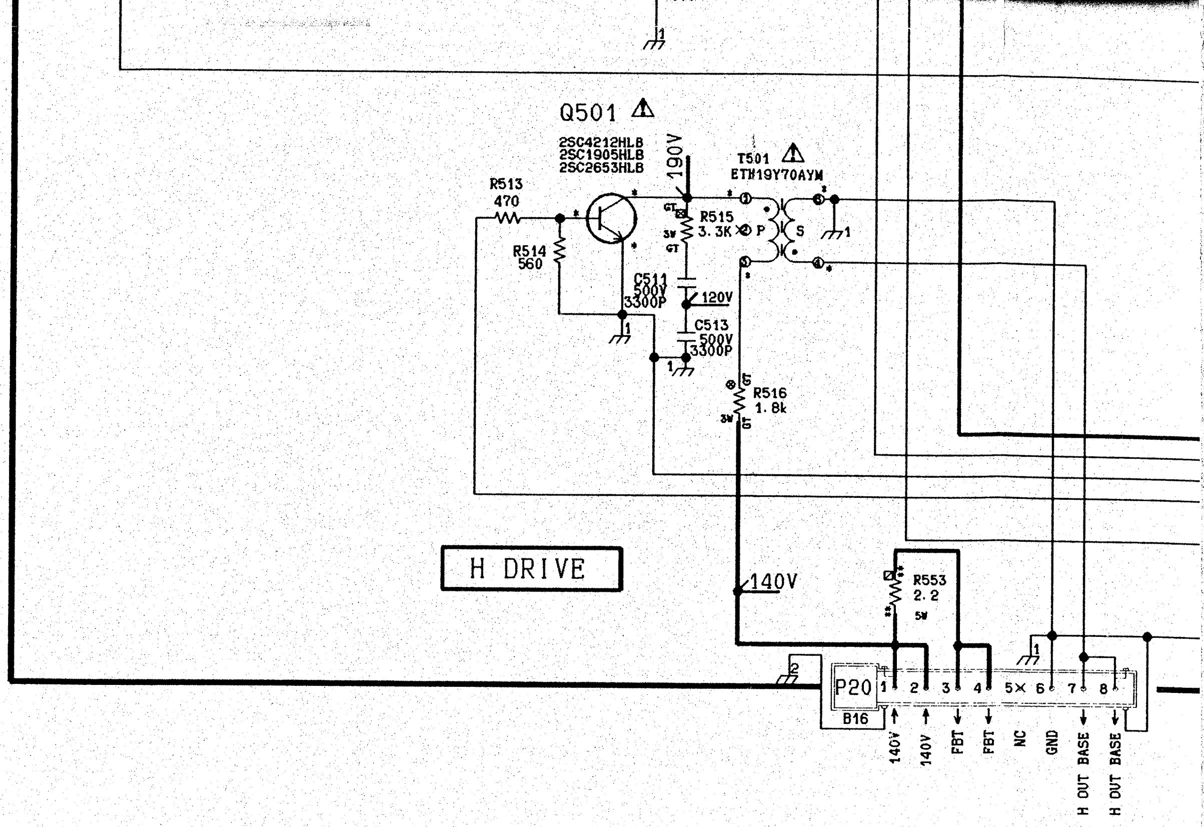
LR–Board Transistors

	B	C	E
Q353	11.90	170.00	11.40
Q354	171.90	220.00	171.80
Q355	170.10	0.80	171.10
Q356	171.20	2.00	171.60

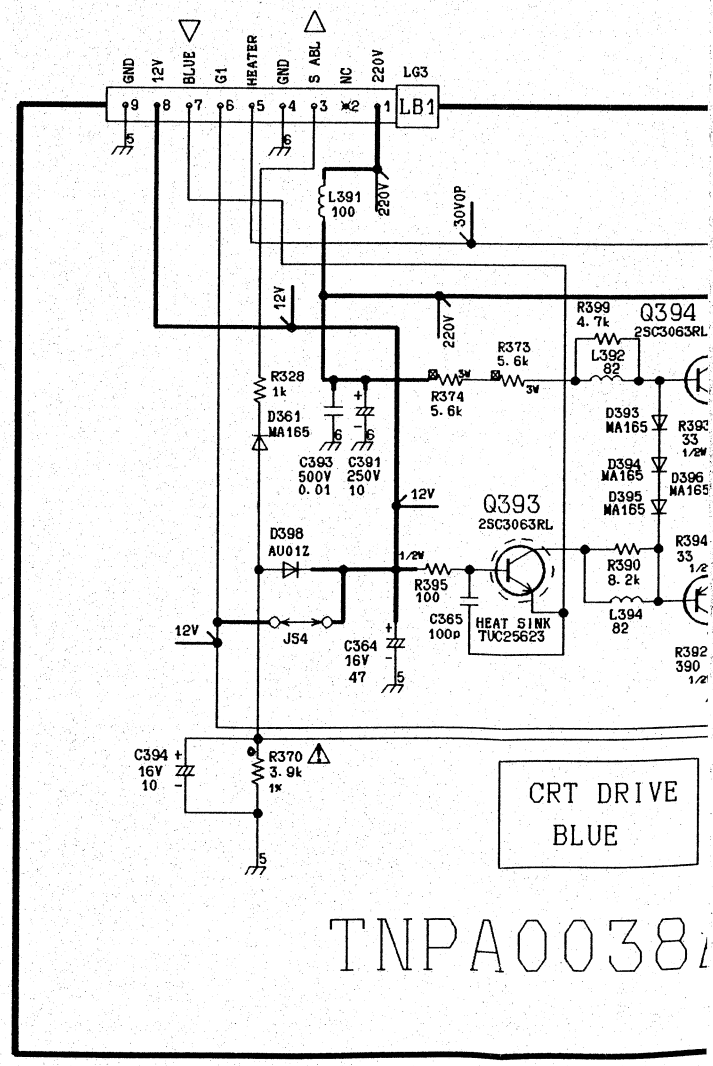
5

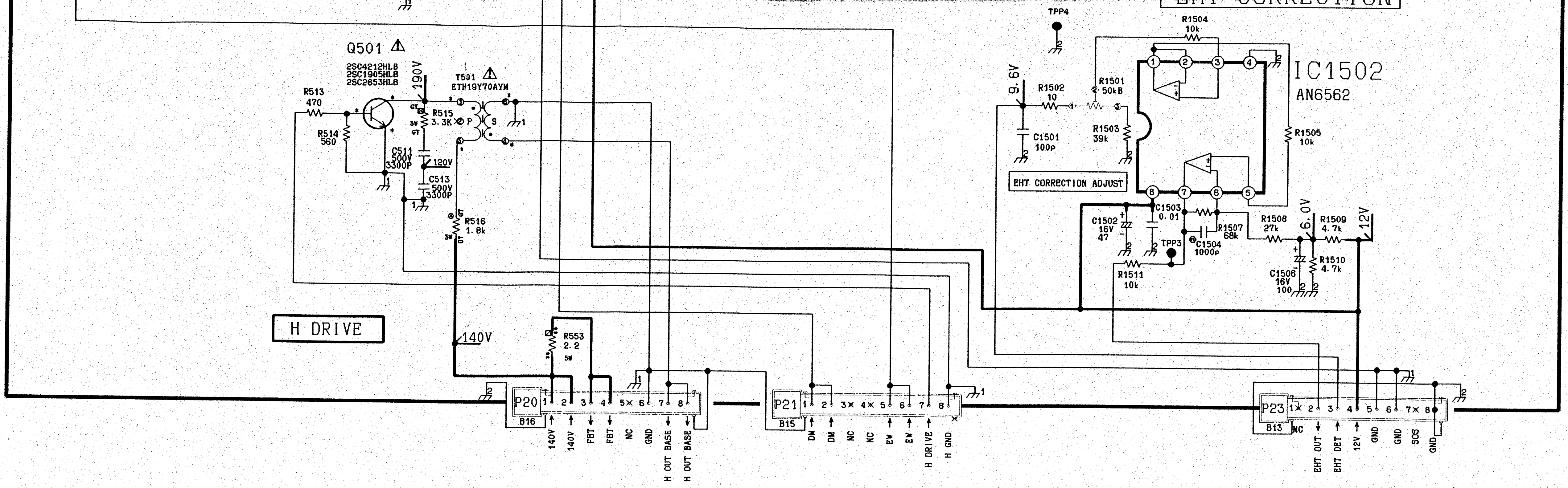
IMPORTANT SAFETY NOTICE

THIS SCHEMATIC DIAGRAM INCORPORATES SPECIAL FEATURES THAT ARE IMPORTANT FOR PROTECTION FROM X-RADIATION, FIRE AND ELECTRICAL SHOCK HAZARDS. WHEN SERVICING IT IS ESSENTIAL THAT ONLY MANUFACTURERS SPECIFIED PARTS BE USED FOR THE CRITICAL COMPONENTS DESIGNATED WITH A ⚠ IN THE SCHEMATIC.

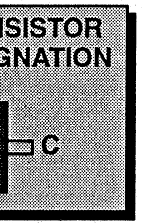

Q501 ⚠
2SC4212HLB
2SC1905HLB
2SC2653HLB
190V
T501 ⚠
ETH19Y70AYM
R513 470
R514 560
R515 3.3K
C511 500V 3300P
120V
C513 500V 3300P
R516 1.8k
H DRIVE
140V
R553 2.2 5W
P20
B16
140V
140V
FBT
FBT
NC
GND
H OUT BASE
H OUT BASE

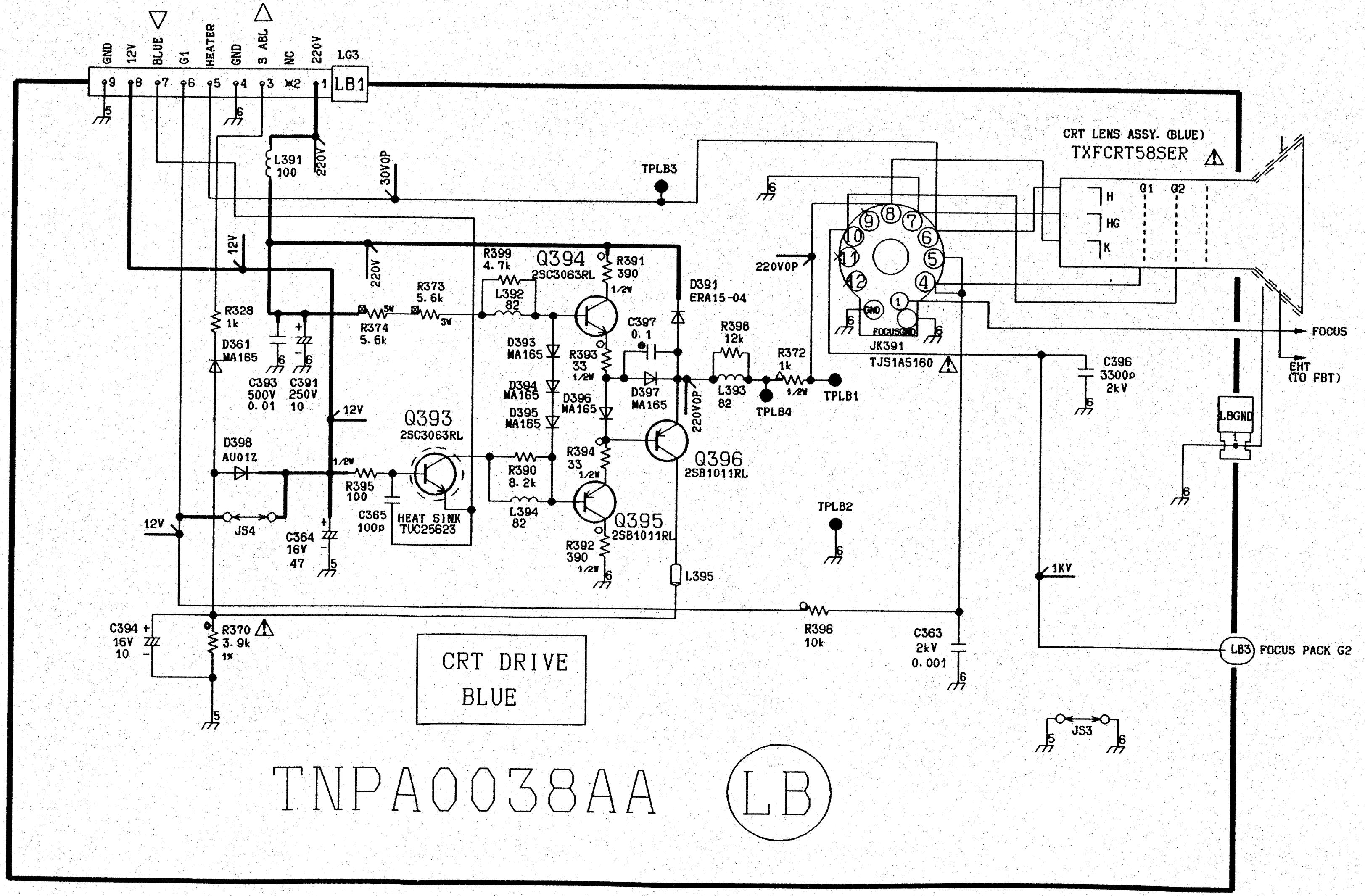
LB–Board
All Mo

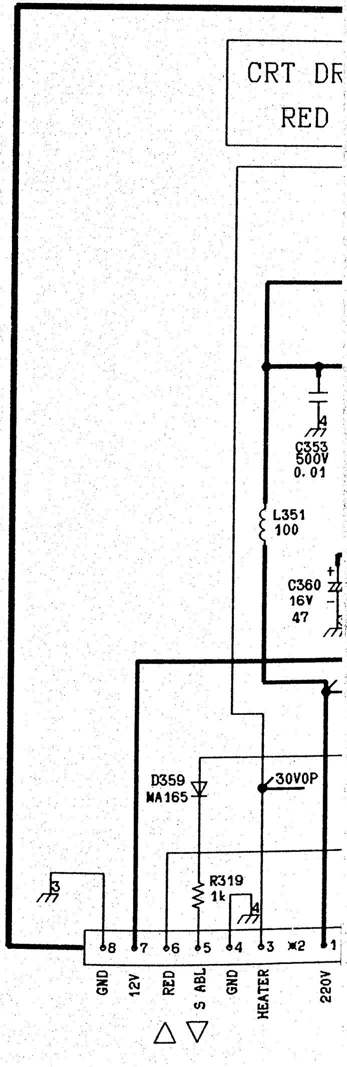

GND
12V
BLUE
G1
HEATER
GND
S ABL
NC
220V
LG3
LB1
L391 100
250V
300VP
12V
220V
R328 1k
D361 MA165
C393 500V 0.01
C391 250V 10
R374 5.6k
R373 5.6k
R399 4.7k
Q394
2SC3063RL
L392 82
D393 MA165
R393 33
D394 MA165
D395 MA165
D396 MA165
Q393
2SC3063RL
D398 AU01Z
R395 100
C365 100p
HEAT SINK TUC25623
R390 8.2k
L394 82
R394 33
R392 390
J54
C364 16V 47
C394 16V 10
R370 ⚠ 3.9k
CRT DRIVE BLUE
TNPA0038

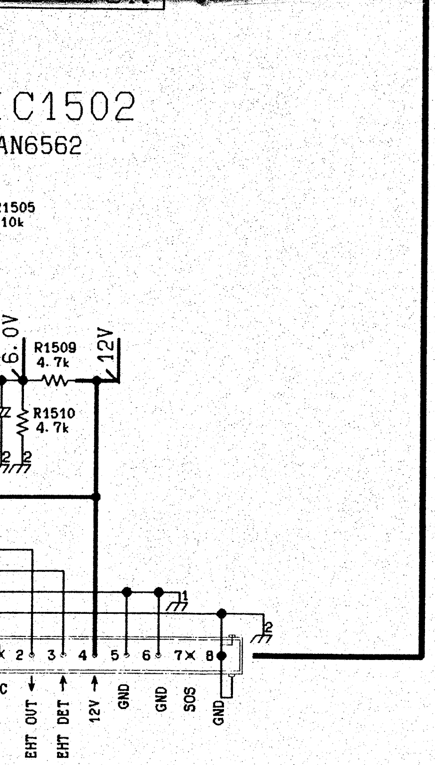

Q501
2SC4212HLB
2SC1905HLB
2SC2653HLB
190V
T501
ETH19Y70AYM
R513 470
R514 560
R515 3.3K
C511 500V 3300P
120V
C513 500V 3300P
R516 1.8k
H DRIVE
140V
R553 2.2 5W
P20
B16
140V
140V
FBT
FBT
NC
GND
H OUT BASE
H OUT BASE
P21
B15
DM
DM
NC
NC
EW
EW
H DRIVE
H GND
TPP4
R1504 10k
IC1502
AN6562
9.6V
R1502 10
R1501 50kB
C1501 100p
R1503 39k
R1505 10k
EHT CORRECTION ADJUST
C1502 16V 47
C1503 0.01
R1507 68k
C1504 1000p
TPP3
R1511 10k
R1508 27k
6.0V
R1509 4.7k
12V
R1510 4.7k
C1506 16V 100
P23
B13
NC
EHT OUT
EHT DET
12V
GND
GND
SOS
GND

LB–Board Schematic All Models

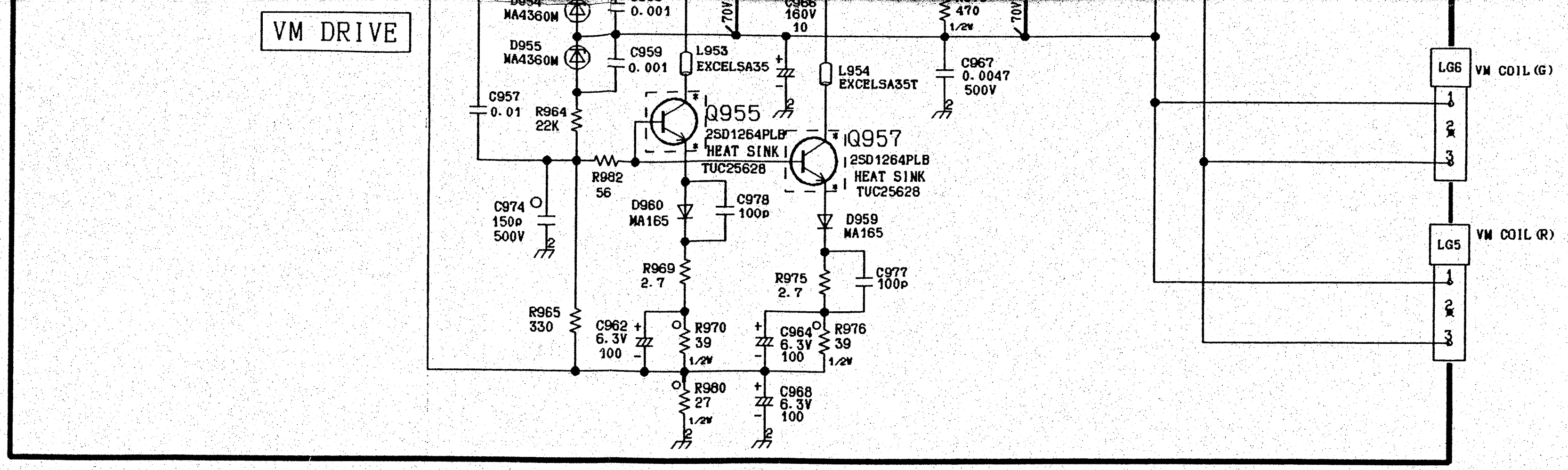

ISISTOR
GNATION
C


GND
12V
BLUE
G1
HEATER
GND
S ABL
NC
220V
LG3
LB1
L391 100
220V
300VP
TPLB3
CRT LENS ASSY. (BLUE)
TXFCRT58SER
H
HG
K
G1
G2
12V
220V
R399 4.7k
Q394
2SC3063RL
R391 390 1/2W
D391 ERA15-04
220V0P
R373 5.6k
L392 82
R374 5.6k
R328 1k
D361 MA165
C393 500V 0.01
C391 250V 10
D393 MA165
R393 33 1/2W
C397 0.1
R398 12k
R372 1k 1/2W
TPLB1
TPLB4
L393 82
D394 MA165
D396 MA165
D397 MA165
D395 MA165
220V0P
Q393
2SC3063RL
12V
D398 AU01Z
R395 100
C365 100p
HEAT SINK TUC25623
R394 33 1/2W
R390 8.2k
L394 82
Q396
2SB1011RL
Q395
2SB1011RL
R392 390 1/2W
L395
12V
J54
C364 16V 47
TPLB2
JK391
TJS1A5160
FOCUS
EHT (TO FBT)
C396 3300p 2kV
LBGND
1KV
C394 16V 10
R370 3.9k 1W
CRT DRIVE BLUE
R396 10k
C363 2kV 0.001
LB3
FOCUS PACK G2
JS3
TNPA0038AA
LB


CRT DR
RED
C353 500V 0.01
L351 100
C360 16V 47
D359 MA165
300VP
R319 1k
GND
12V
RED
S ABL
GND
HEATER
220V

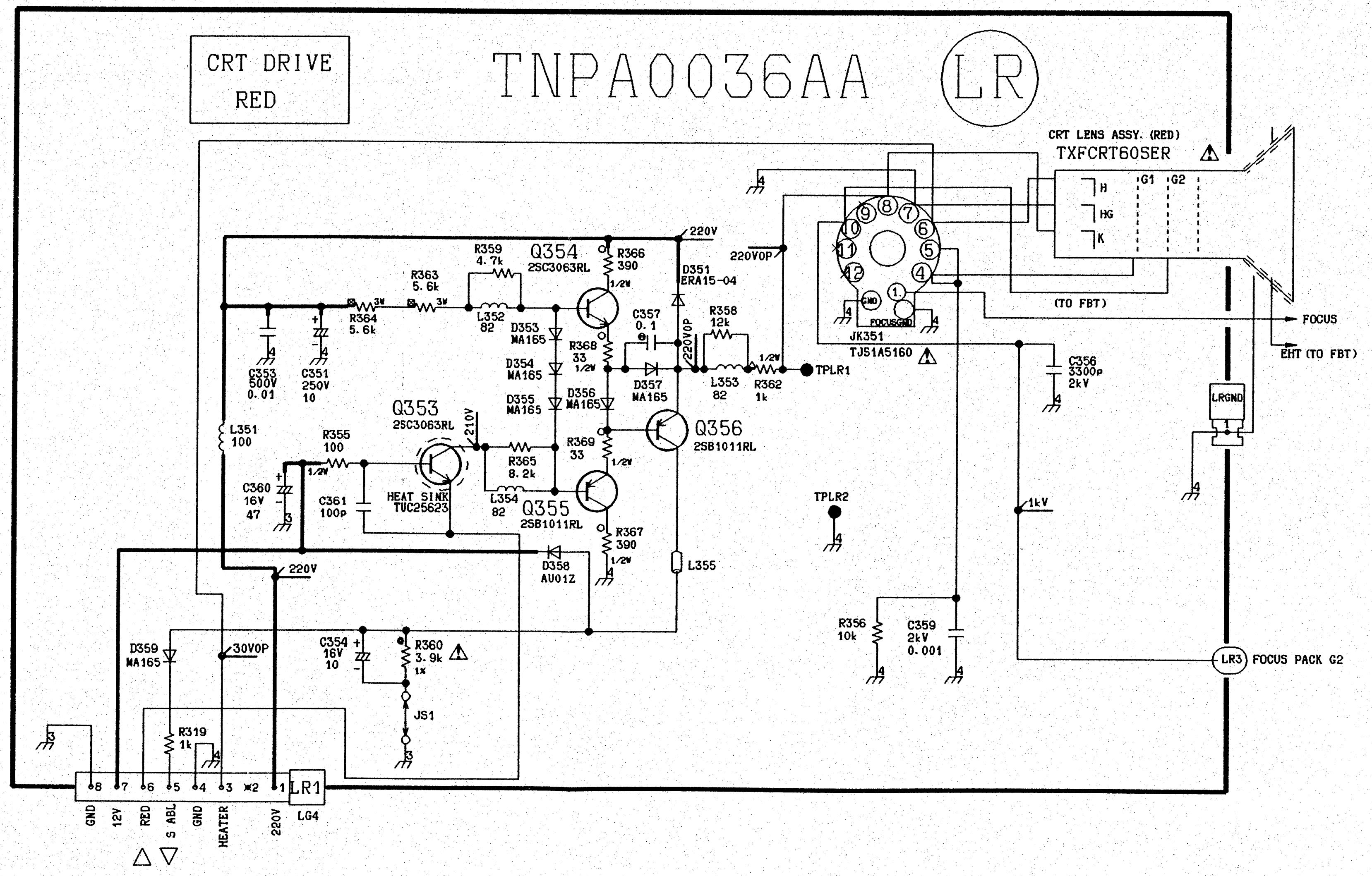


IC1502
AN6562
C1505
10k
6.0V
R1509
4.7k
12V
R1510
4.7k
2 3 4 5 6 7× 8
EHT OUT
EHT DET
12V
GND
GND
SOS
GND



VM DRIVE
D954
MA4360M
0.001
70V
C966
160V
10
470
1/2W
70V
D955
MA4360M
C959
0.001
L953
EXCELSA35
L954
EXCELSA35T
C967
0.0047
500V
C957
0.01
R964
22K
Q955
2SD1264PLB
HEAT SINK
TUC25628
Q957
2SD1264PLB
HEAT SINK
TUC25628
R982
56
C974
150p
500V
D960
MA165
C978
100p
D959
MA165
R969
2.7
R975
2.7
C977
100p
R965
330
C962
6.3V
100
R970
39
1/2W
C964
6.3V
100
R976
39
1/2W
R980
27
1/2W
C968
6.3V
100
LG6
VM COIL (G)
LG5
VM COIL (R)

LR–Board Schematic
All Models



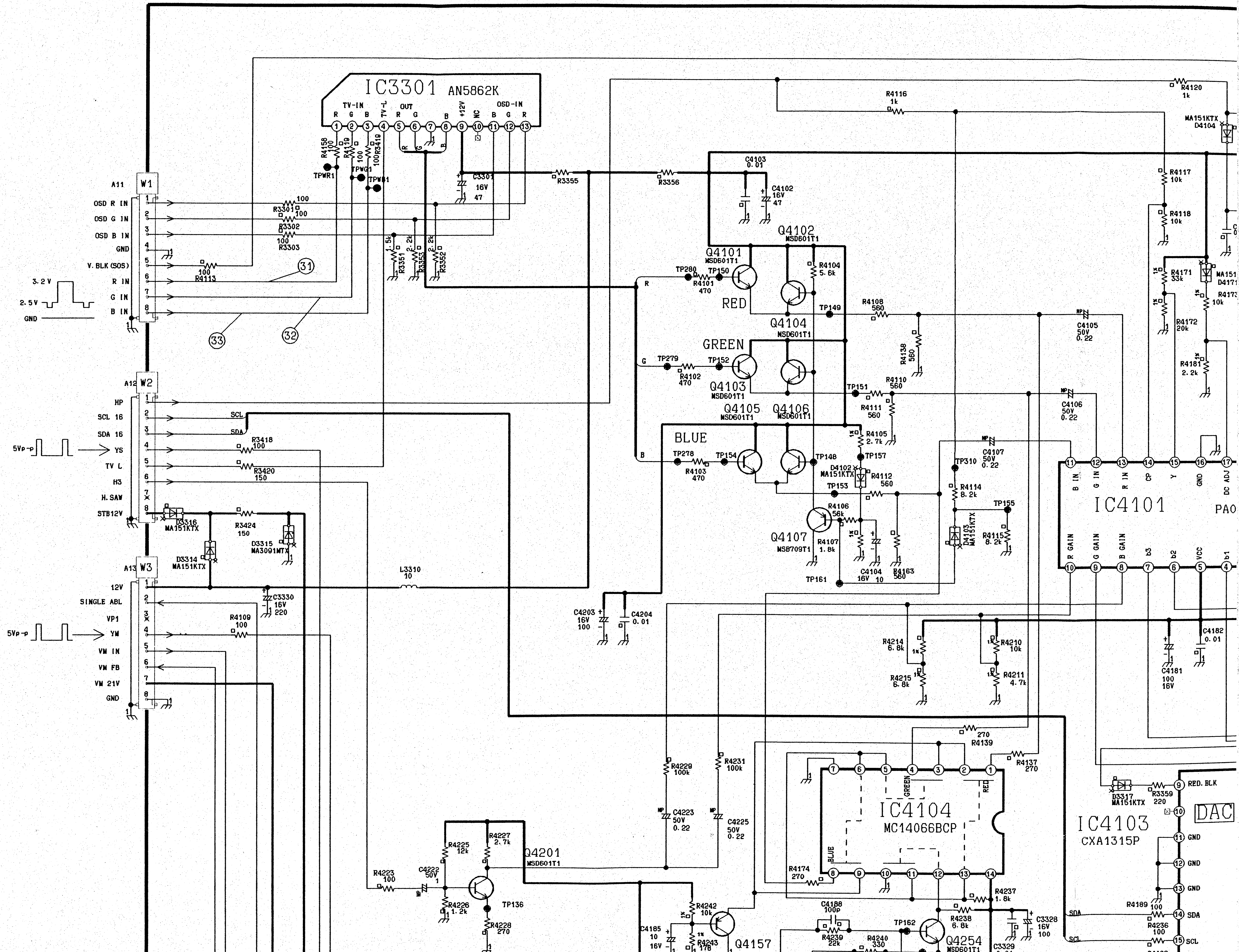
CRT DRIVE
RED
TNPA0036AA
LR
CRT LENS ASSY. (RED)
TXFCRT60SER
H
HG
K
G1
G2
220V
220V0P
R359
4.7k
Q354
2SC3063RL
R366
390
1/2W
D351
ERA15-04
R363
5.6k
3V
3V
R364
5.6k
L352
82
D353
MA165
C357
0.1
220V0P
R358
12k
R368
33
1/2W
D354
MA165
D357
MA165
L353
82
R362
1k
1/2W
TPLR1
JK351
TJ51A5160
GND
FOCUS
(TO FBT)
FOCUS
EHT (TO FBT)
C356
3300p
2kV
C353
500V
0.01
C351
250V
10
D355
MA165
D356
MA165
Q356
2SB1011RL
Q353
2SC3063RL
210V
L351
100
R355
100
1/2W
R369
33
1/2W
R365
8.2k
C360
16V
47
C361
100p
HEAT SINK
TUC25623
L354
82
Q355
2SB1011RL
R367
390
1/2W
TPLR2
1kV
LRGND
D358
AU01Z
L355
220V
R356
10k
C359
2kV
0.001
LR3
FOCUS PACK G2
D359
MA165
30V0P
C354
16V
10
R360
3.9k
1x
JS1
R319
1k
8 7 6 5 4 3 ×2 1
LR1
LG4
GND
12V
RED
S ABL
GND
HEATER
220V

MTC9705703C1

Voltages All Models

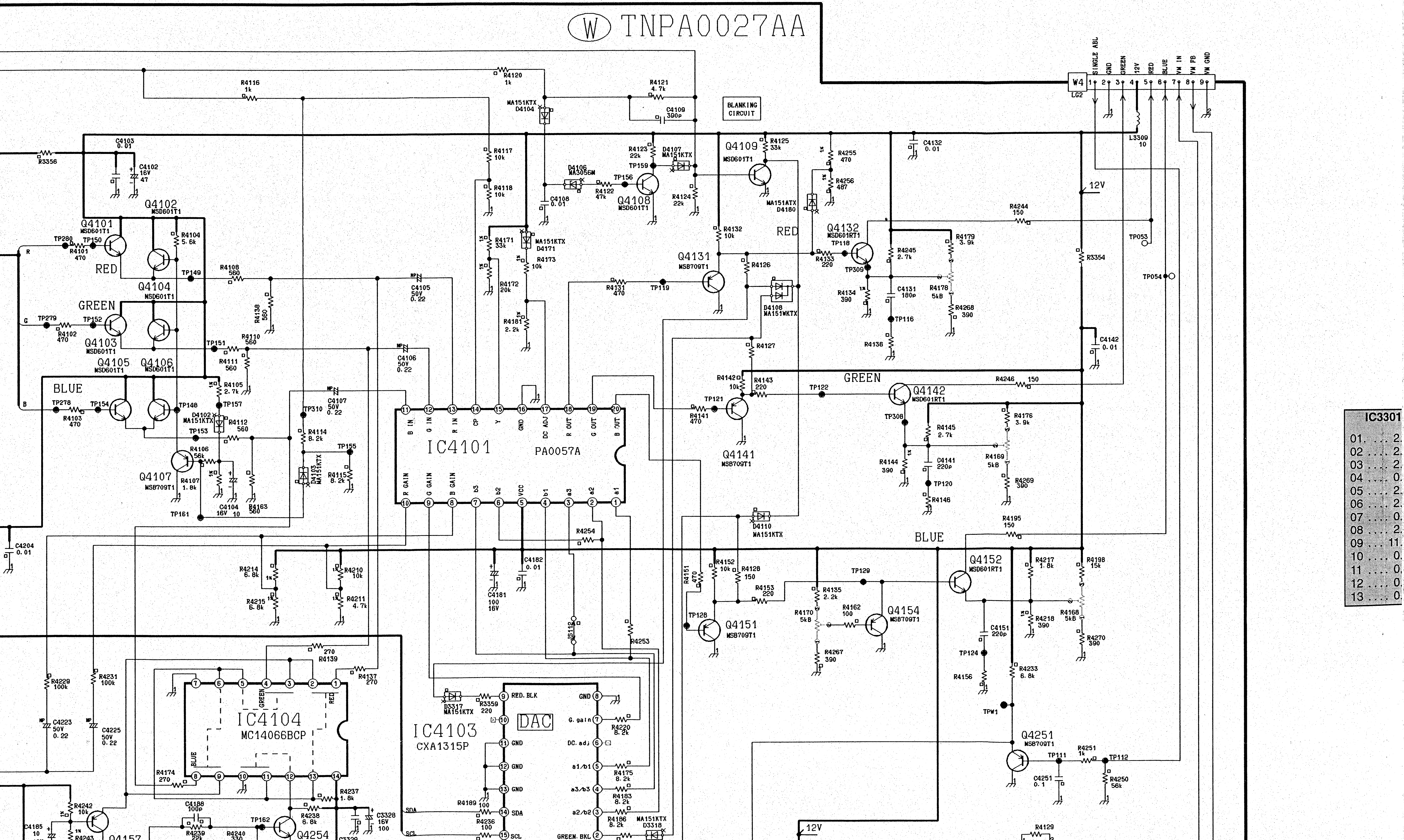
PT–51G50U/CU/LU/PU/TU PT–51G52V/CV/LV/PV/TV/XV PT–61G52V/CV

W–Board Schematic
All Models



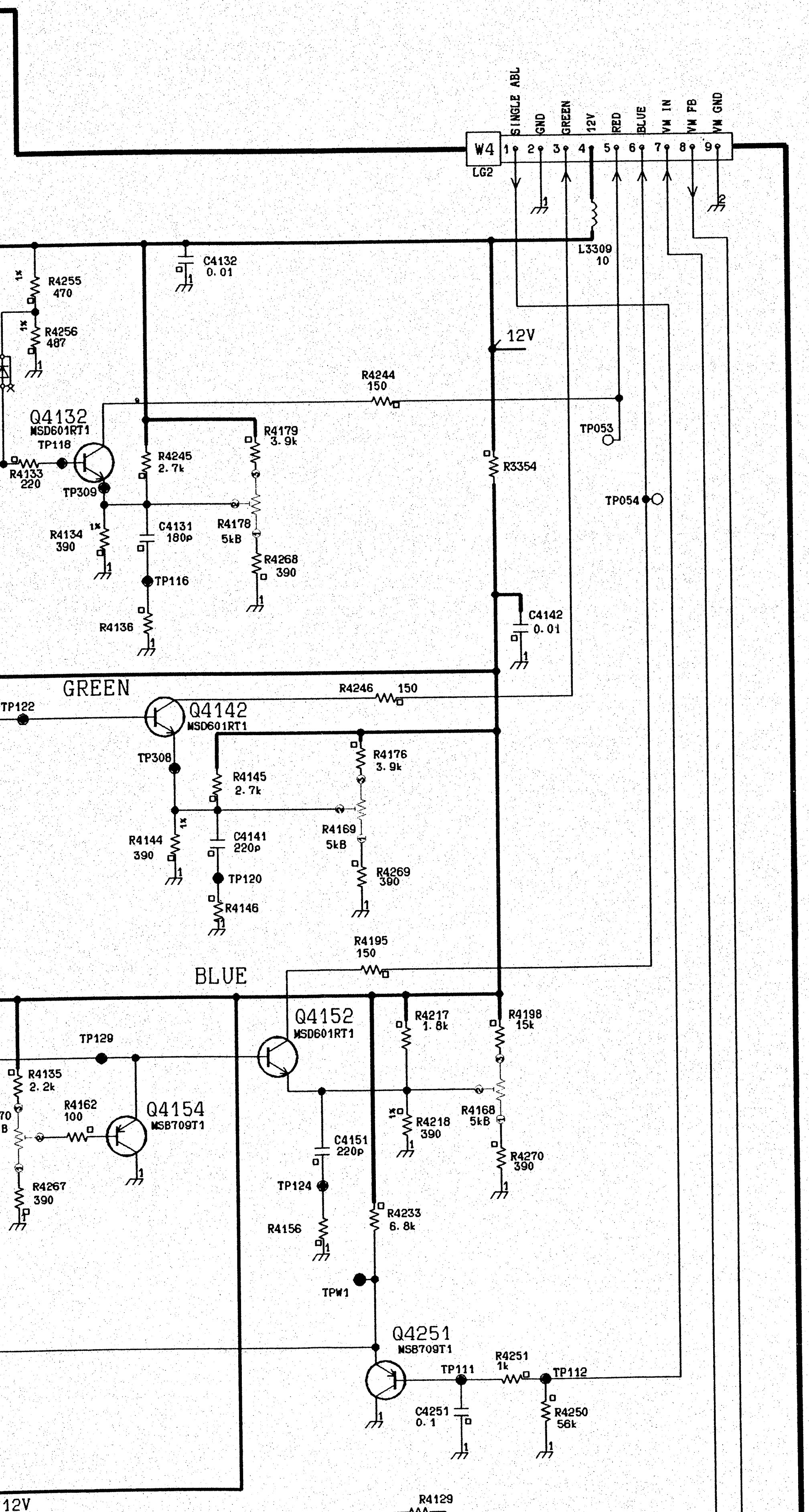
A
B
C
D
1
2
3
IC3301 AN5862K
TV-IN R G B
TV-L
OUT R G B
+12V
NC
OSD-IN B G R
R4158 100
R4119 100
R3419 100
TPWR1
TPWG1
TPWB1
C3301 16V 47
R3355
R3356
C4103 0.01
C4102 16V 47
R4116 1k
R4120 1k
MA151KTX D4104
R4117 10k
R4118 10k
A11 W1
OSD R IN
OSD G IN
OSD B IN
GND
V.BLK (SOS)
R IN
G IN
B IN
3.2V
2.5V
GND
R3301 100
100
R3302 100
R3303
R4113 100
R3351 1.5k
R3353 2.2k
R3352 2.2k
(31)
(32)
(33)
Q4101 MSD601T1
Q4102 MSD601T1
TP280
TP150
R4101 470
R4104 5.6k
RED
Q4104 MSD601T1
TP149
R4108 560
R4138 560
C4105 50V 0.22
GREEN
TP279
TP152
R4102 470
Q4103 MSD601T1
TP151
R4110 560
R4111 560
C4106 50V 0.22
Q4105 MSD601T1
Q4106 MSD601T1
BLUE
TP278
TP154
R4103 470
TP148
R4105 2.7k
TP157
D4102 MA151KTX
R4112 560
TP153
R4106 56k
Q4107 MSB709T1
R4107 1.8k
C4104 16V 10
R4163 560
TP161
TP310
C4107 50V 0.22
R4114 8.2k
D4103 MA151KTX
R4115 8.2k
TP155
R4171 33k
MA151 D4171
R4173 10k
R4172 20k
R4181 2.2k
IC4101
PA0
B IN
G IN
R IN
CP
Y
GND
DC ADJ
R GAIN
G GAIN
B GAIN
b3
b2
VCC
b1
A12 W2
HP
SCL 16
SDA 16
YS
TV L
H3
H.SAW
STB12V
5Vp-p
SCL
SDA
R3418 100
R3420 150
D3316 MA151KTX
R3424 150
D3315 MA3091MTX
D3314 MA151KTX
A13 W3
12V
SINGLE ABL
VP1
YM
VM IN
VM FB
VM 21V
GND
5Vp-p
L3310 10
C3330 16V 220
R4109 100
C4203 16V 100
C4204 0.01
R4214 6.8k
R4215 6.8k
R4210 10k
R4211 4.7k
C4181 100 16V
C4182 0.01
R4139 270
R4137 270
IC4104 MC14066BCP
GREEN
RED
BLUE
R4174 270
R4237 1.8k
D3317 MA151KTX
R3359 220
RED.BLK
IC4103 CXA1315P
DAC
GND
SDA
SCL
R4189 100
R4236 100
C3328 16V 100
R4229 100k
R4231 100k
C4223 50V 0.22
C4225 50V 0.22
R4225 12k
R4227 2.7k
Q4201 MSD601T1
R4223 100
C4222 50V 1
R4226 1.2k
TP136
R4228 270
R4242 10k
C4185 10 16V
R4243 470
Q4157
C4188 100p
R4239 22k
R4240 330
TP162
R4238 6.8k
Q4254 MSD601T1
C3329

W–Board Schematic
All Models

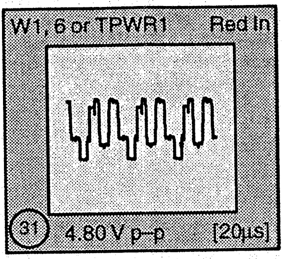

W TNPA0027AA
W4
LG2
SINGLE ABL
GND
GREEN
12V
RED
BLUE
VM IN
VM FB
VM GND
L3309 10
BLANKING CIRCUIT
12V
IC4101
PA0057A
B IN
G IN
R IN
CP
Y
GND
DC ADJ
R OUT
G OUT
B OUT
R GAIN
G GAIN
B GAIN
b3
b2
VCC
b1
a3
a2
a1
IC4104
MC14066BCP
IC4103
CXA1315P
DAC
RED. BLK
GND
G. gain
DC. adj
a1/b1
a3/b3
a2/b2
GREEN. BKL
SDA
SCL
Q4101 MSD601T1
Q4102 MSD601T1
Q4103 MSD601T1
Q4104 MSD601T1
Q4105 MSD601T1
Q4106 MSD601T1
Q4107 MSB709T1
Q4108 MSD601T1
Q4109 MSD601T1
Q4131 MSB709T1
Q4132 MSD601RT1
Q4141 MSB709T1
Q4142 MSD601RT1
Q4151 MSB709T1
Q4152 MSD601RT1
Q4154 MSB709T1
Q4251 MSB709T1
Q4254
Q4157
RED
GREEN
BLUE
D4104 MA151KTX
D4106 MA3056M
D4107 MA151KTX
D4180 MA151ATX
D4171 MA151KTX
D4102 MA151KTX
D4103 MA151KTX
D4108 MA151WKTX
D4110 MA151KTX
D3317 MA151KTX
D3318 MA151KTX
TP053
TP054
TPW1

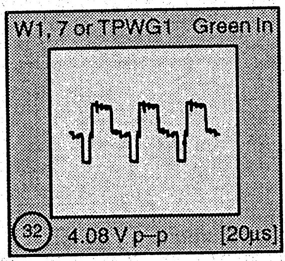
IC3301
01. . . . 2.
02. . . . 2.
03. . . . 2.
04. . . . 0.
05. . . . 2.
06. . . . 2.
07. . . . 0.
08. . . . 2.
09. . . . 11.
10. . . . 0.
11. . . . 0.
12. . . . 0.
13. . . . 0.

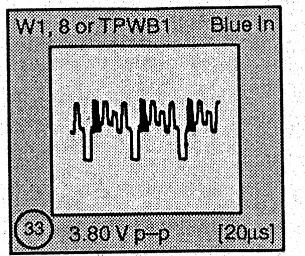
F G H


W4
LG2
SINGLE ABL
GND
GREEN
12V
RED
BLUE
VM IN
VM FB
VM GND
1
2
3
4
5
6
7
8
9
L3309
10
C4132
0.01
R4255
470
R4256
487
12V
R4244
150
TP053
TP054
Q4132
MSD601RT1
TP118
R4133
220
TP309
R4245
2.7k
R4179
3.9k
R3354
C4131
180p
R4178
5kB
R4134
390
TP116
R4268
390
R4136
C4142
0.01
GREEN
TP122
Q4142
MSD601RT1
R4246
150
TP308
R4145
2.7k
R4176
3.9k
R4144
390
C4141
220p
R4169
5kB
TP120
R4269
390
R4146
R4195
150
BLUE
Q4152
MSD601RT1
R4217
1.8k
R4198
15k
TP129
R4135
2.2k
R4162
100
Q4154
MSB709T1
R4218
390
R4168
5kB
C4151
220p
R4270
390
R4267
390
TP124
R4156
R4233
6.8k
TPW1
Q4251
MSB709T1
R4251
1k
TP111
TP112
C4251
0.1
R4250
56k
12V
R4129

W-Board Waveforms







W–Board Voltage Measurements

IC3301	
01	2.60
02	2.70
03	2.60
04	0.00
05	2.70
06	2.80
07	0.00
08	2.70
09	11.80
10	0.00
11	0.60
12	0.60
13	0.60

IC4101			
01	5.00	11	4.80
02	0.90	12	4.80
03	3.10	13	4.80
04	5.00	14	0.40
05	11.80	15	4.40
06	0.90	16	0.00
07	0.00	17	2.00
08	5.80	18	3.00
09	5.60	19	2.90
10	6.80	20	3.10

IC4103			
01	5.00	09	5.00
02	4.70	10	3.10
03	0.90	11	0.00
04	3.40	12	0.00
05	5.00	13	0.00
06	1.90	14	4.90
07	5.70	15	4.90
08	0.00	16	9.30

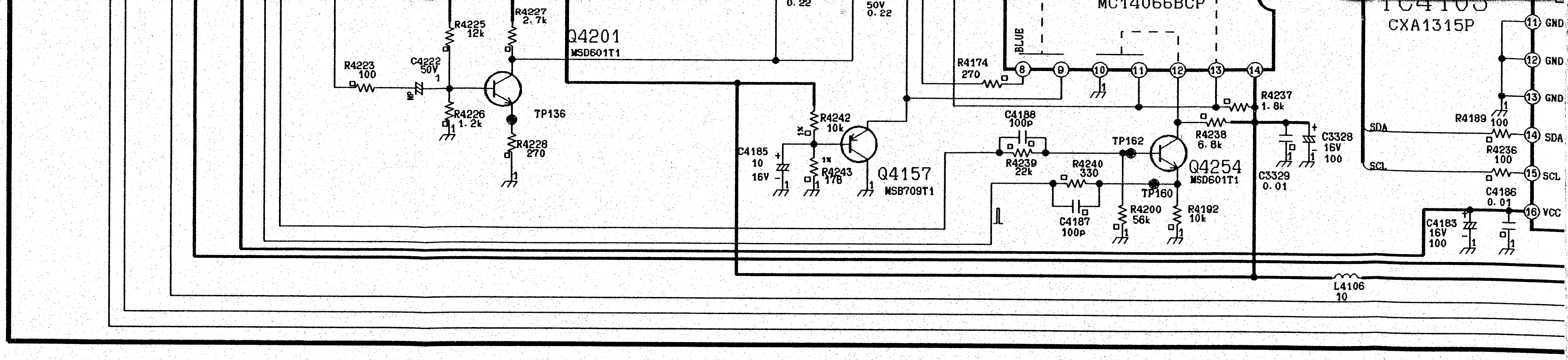
IC4104	
01	1.30
02	0.10
03	0.10
04	1.30
05	0.60
06	0.60
07	0.00
08	1.30
09	0.10
10	0.00
11	0.50
12	11.80
13	0.50
14	11.80

W–Board Transistors

	B	C	E
Q4101	2.70	11.80	2.60
Q4102	1.80	11.90	2.60
Q4103	2.80	11.80	2.70
Q4104	1.80	11.80	2.70
Q4105	1.80	11.80	2.60
Q4106	2.70	11.80	2.60

	B	C	E
Q4152	2.90	10.80	2.70
Q4154	6.30	0.00	2.90
Q4157	0.20	0.00	0.10
Q4201	1.00	7.10	0.40
Q4251	1.50	0.00	2.20
Q4254	0.00	11.80	0.00

3

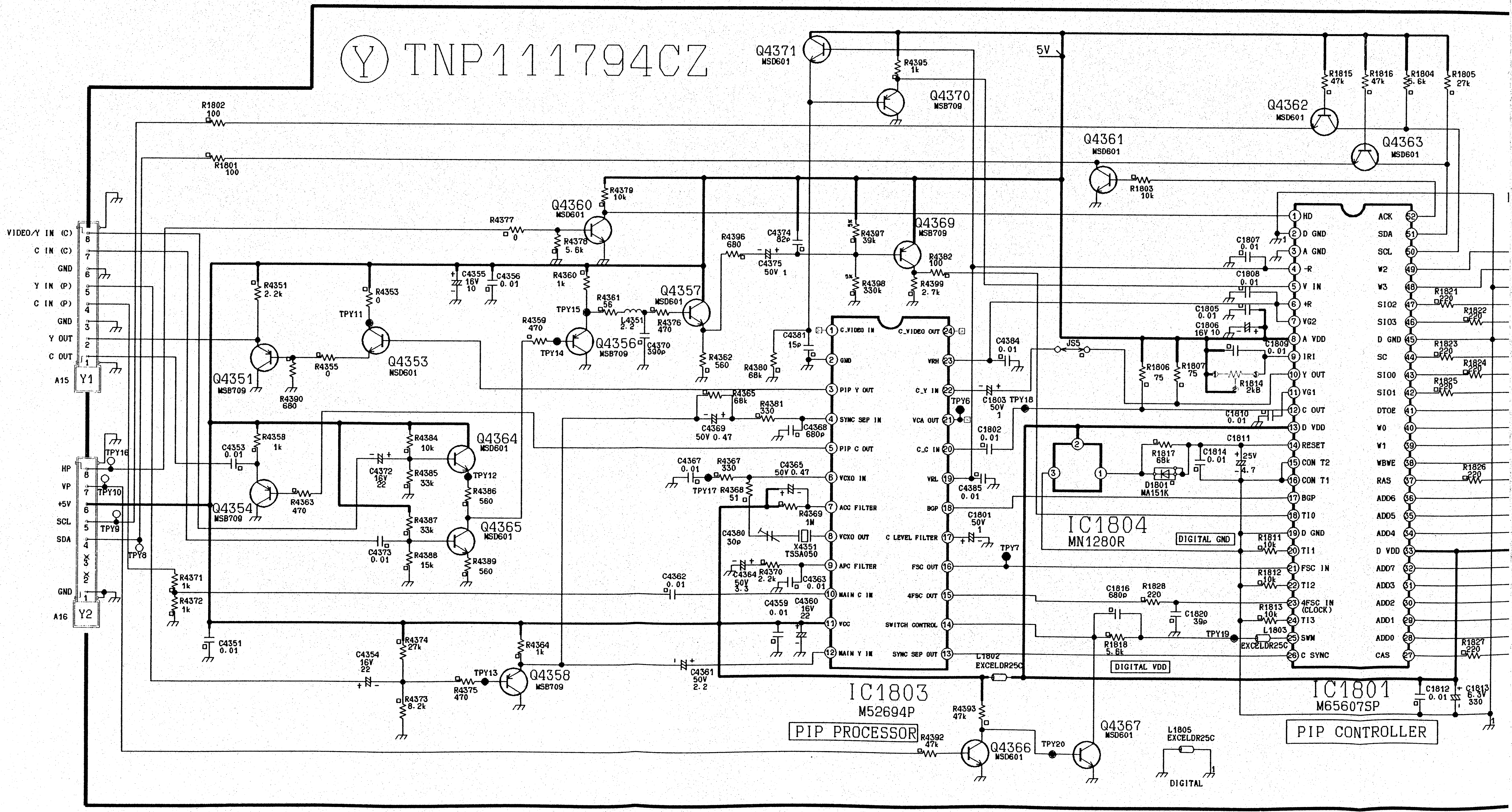


MC14066BCP
IC4105
CXA1315P
Q4201
MSD601T1
R4225 12k
R4227 2.7k
R4223 100
C4222 50V 1
R4226 1.2k
TP136
R4228 270
R4242 10k
C4185 10 16V
R4243 1k
Q4157
MSB709T1
R4174 270
BLUE
C4188 100p
R4239 22k
R4240 330
C4187 100p
R4200 56k
TP162
TP160
Q4254
MSD601T1
R4192 10k
R4238 6.8k
R4237 1.8k
C3328 16V 100
C3329 0.01
R4189 100
R4236 100
C4186 0.01
C4183 16V 100
SDA
SCL
GND
VCC
L4106 10

Y–Board Schematic
All Models

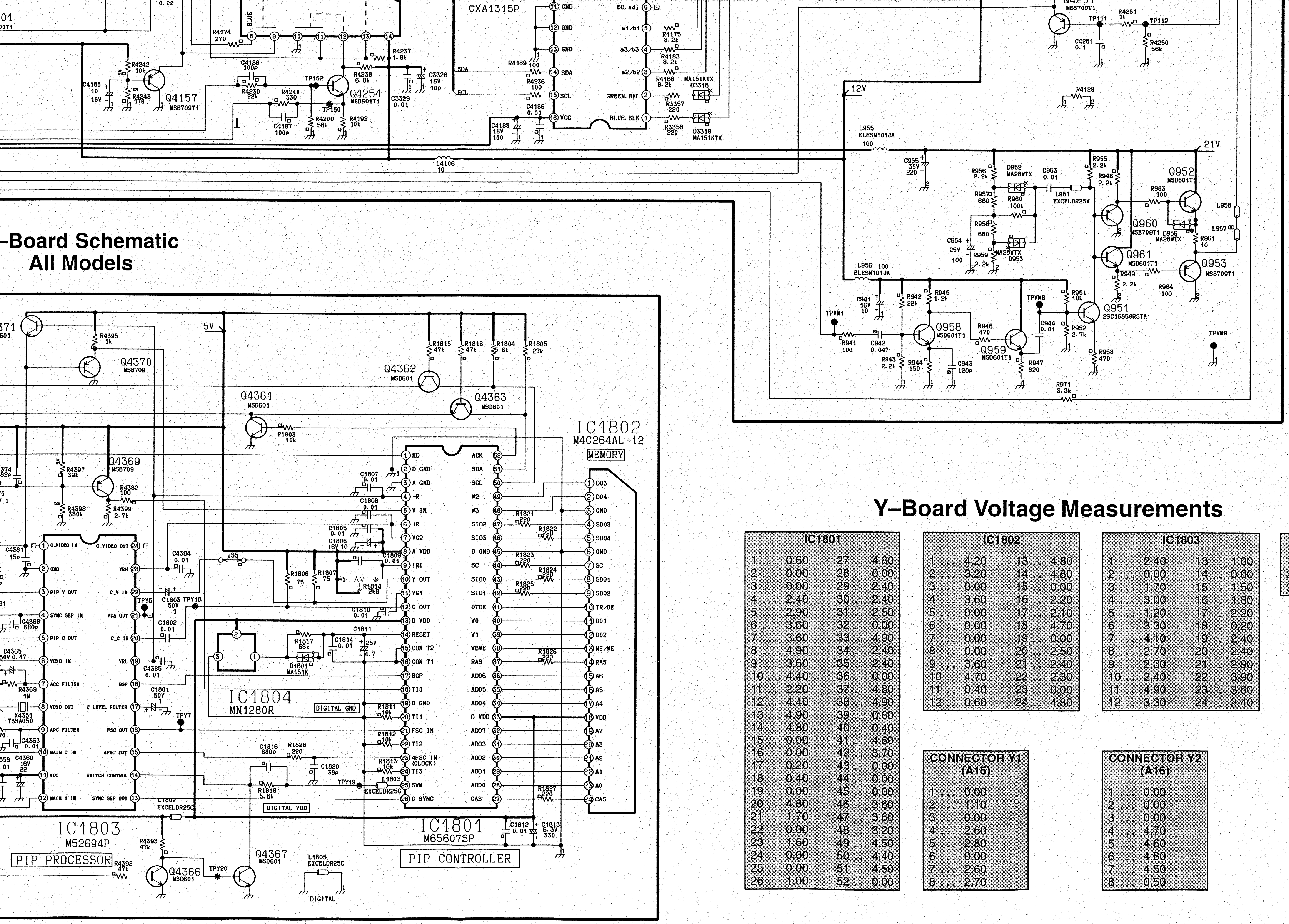
4

5



Ⓨ TNP111794CZ
VIDEO/Y IN (C)
C IN (C)
GND
Y IN (P)
C IN (P)
GND
Y OUT
C OUT
A15
Y1
HP
VP
+5V
SCL
SDA
GND
A16
Y2
TPY16
TPY10
TPY9
TPY8
R1802 100
R1801 100
Q4371
MSD601
Q4370
MSB709
R4395 1k
Q4360
MSD601
R4379 10k
R4377 0
R4378 5.6k
Q4351
MSB709
R4351 2.2k
R4353 0
TP11
Q4353
MSD601
R4355 0
R4390 680
C4355 16V 10
C4356 0.01
R4360 1k
TP15
R4361 56
L4351 2.2
R4376 470
Q4357
MSD601
R4359 470
TPY14
Q4356
MSB709
C4370 390p
R4362 560
R4396 680
C4374 82p
C4375 50V 1
R4397 39k
Q4369
MSB709
R4382 100
R4398 330k
R4399 2.7k
C4381 15p
R4380 68k
R4365 68k
C4369 50V 0.47
R4381 330
C4368 680p
C4353 0.01
R4358 1k
Q4354
MSB709
R4363 470
C4372 16V 22
R4384 10k
R4385 33k
Q4364
MSD601
TPY12
R4386 560
R4387 33k
R4388 15k
Q4365
MSD601
R4389 560
C4358 0.01
R4371 1k
R4372 1k
C4351 0.01
C4354 16V 22
R4374 27k
R4373 8.2k
TPY13
R4375 470
Q4358
MSB709
R4364 1k
C4367 0.01
TPY17
R4367 330
R4368 51
C4365 50V 0.47
R4369 1M
C4380 30p
X4351 TS5A050
C4364 50V 3.3
R4370 2.2k
C4363 0.01
C4362 0.01
C4359 0.01
C4360 16V 22
C4361 50V 2.2
C_VIDEO IN
GND
PIP Y OUT
SYNC SEP IN
PIP C OUT
VCXO IN
ACC FILTER
VCXO OUT
APC FILTER
MAIN C IN
VCC
MAIN Y IN
C_VIDEO OUT
VRH
C_Y IN
VCA OUT
C_C IN
VRL
BGP
C LEVEL FILTER
FSC OUT
4FSC OUT
SWITCH CONTROL
SYNC SEP OUT
TPY6
C4384 0.01
C1803 50V 1
TPY18
C1802 0.01
C4385 0.01
C1801 50V 1
TPY7
L1802 EXCELDR25C
IC1803
M52694P
PIP PROCESSOR
R4393 47k
R4392 47k
Q4366
MSD601
TPY20
Q4367
MSD601
L1805 EXCELDR25C
DIGITAL
5V
JS5
R1815 47k
R1816 47k
R1804 5.6k
R1805 27k
Q4362
MSD601
Q4363
MSD601
Q4361
MSD601
R1803 10k
C1807 0.01
C1808 0.01
C1805 0.01
C1806 16V 10
C1809 0.01
R1806 75
R1807 75
R1814 2kB
C1810 0.01
C1811
C1814 0.01
25V 4.7
R1817 68k
D1801 MA151K
IC1804
MN1280R
DIGITAL GND
R1811 10k
R1812 10k
R1813 10k
L1803 EXCELDR25C
C1816 680p
R1828 220
C1820 39p
TPY19
R1818 5.6k
DIGITAL VDD
HD
D GND
A GND
-R
V IN
+R
VG2
A VDD
IR1
Y OUT
VG1
C OUT
D VDD
RESET
CON T2
CON T1
BGP
T10
D GND
T11
FSC IN
T12
4FSC IN (CLOCK)
T13
SWN
C SYNC
ACK
SDA
SCL
W2
W3
SIO2
SIO3
D GND
SC
SIO0
SIO1
DTOE
W0
W1
WBWE
RAS
ADD6
ADD5
ADD4
D VDD
ADD7
ADD3
ADD2
ADD1
ADD0
CAS
R1821 220
R1822 220
R1823 220
R1824 220
R1825 220
R1826 220
R1827 220
C1812 0.01
C1813 6.3V 330
IC1801
M65607SP
PIP CONTROLLER

–Board Schematic
All Models


CXA1315P
IC1802
M4C264AL-12
MEMORY
IC1804
MN1280R
DIGITAL GND
DIGITAL VDD
IC1801
M65607SP
PIP CONTROLLER
IC1803
M52694P
PIP PROCESSOR
Q4157 MSB709T1
Q4254 MSD601T1
Q4251 MSB709T1
Q4370 MSB709
Q4362 MSD601
Q4361 MSD601
Q4363 MSD601
Q4369 MSB709
Q4366 MSD601
Q4367 MSD601
Q952 MSD601T1
Q960 MSB709T1
Q961 MSD601T1
Q953 MSB709T1
Q951 2SC1685QRSTA
Q958 MSD601T1
Q959 MSD601T1
12V
21V
5V
L955 ELESN101JA 100
L956 100 ELESN101JA
L4106 10
L1805 EXCELDR25C
DIGITAL
TPVM1
TPVM8
TPVM9
TP111
TP112
TPY6
TPY7
TPY18
TPY19
TPY20
SDA
SCL
GREEN. BKL
BLUE. BLK
DC. adj
a1/b1
a3/b3
a2/b2
BLUE
HD
D GND
A GND
-R
V IN
+R
VG2
A VDD
IRI
Y OUT
VG1
C OUT
D VDD
RESET
CON T2
CON T1
BGP
TIO
TI1
FSC IN
T12
4FSC IN (CLOCK)
T13
SWM
C SYNC
ACK
W2
W3
SIO2
SIO3
SC
SIO0
SIO1
DTOE
WO
W1
WBWE
RAS
ADO6
ADO5
ADO4
D VDD
ADO7
ADO3
ADO2
ADO1
ADO0
CAS
DO3
DO4
GND
SDO3
SDO4
SDO1
SDO2
TR/DE
DO1
DO2
ME/WE
A6
A5
A4
VDD
A7
A3
A2
A1
A0
C_VIDEO IN
C_VIDEO OUT
PIP Y OUT
VRH
C_Y IN
SYNC SEP IN
VCA OUT
PIP C OUT
C_C IN
VCXO IN
VRL
ACC FILTER
BGP
VCXO OUT
C LEVEL FILTER
APC FILTER
FSC OUT
MAIN C IN
4FSC OUT
VCC
SWITCH CONTROL
MAIN Y IN
SYNC SEP OUT
X4351 TSSA050

Y–Board Voltage Measurements

IC1801			
1 . . .	0.60	27 . .	4.80
2 . . .	0.00	28 . .	0.00
3 . . .	0.00	29 . .	2.40
4 . . .	2.40	30 . .	2.40
5 . . .	2.90	31 . .	2.50
6 . . .	3.60	32 . .	0.00
7 . . .	3.60	33 . .	4.90
8 . . .	4.90	34 . .	2.40
9 . . .	3.60	35 . .	2.40
10 . .	4.40	36 . .	0.00
11 . .	2.20	37 . .	4.80
12 . .	4.40	38 . .	4.90
13 . .	4.90	39 . .	0.60
14 . .	4.80	40 . .	0.40
15 . .	0.00	41 . .	4.60
16 . .	0.00	42 . .	3.70
17 . .	0.20	43 . .	0.00
18 . .	0.40	44 . .	0.00
19 . .	0.00	45 . .	0.00
20 . .	4.80	46 . .	3.60
21 . .	1.70	47 . .	3.60
22 . .	0.00	48 . .	3.20
23 . .	1.60	49 . .	4.50
24 . .	0.00	50 . .	4.40
25 . .	0.00	51 . .	4.50
26 . .	1.00	52 . .	0.00

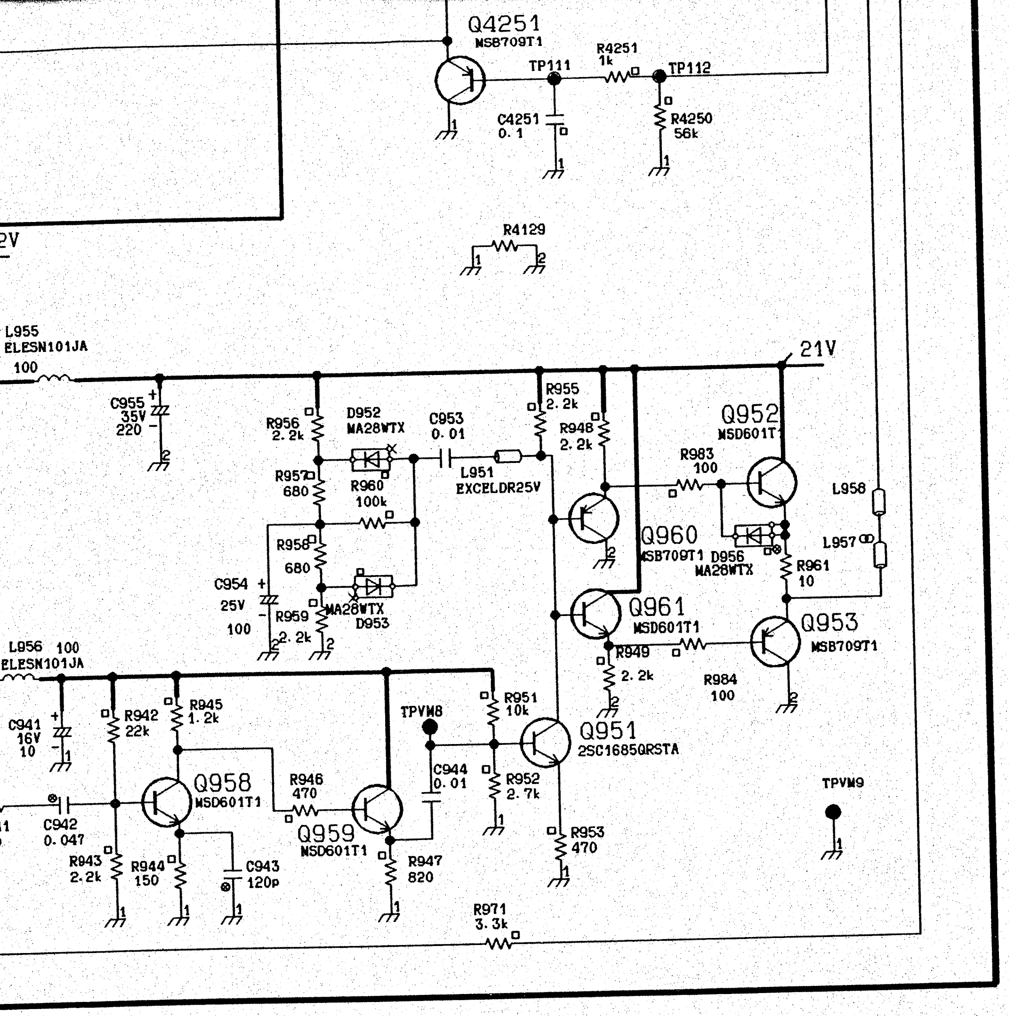
IC1802			
1 . . .	4.20	13 . .	4.80
2 . . .	3.20	14 . .	4.80
3 . . .	0.00	15 . .	0.00
4 . . .	3.60	16 . .	2.20
5 . . .	0.00	17 . .	2.10
6 . . .	0.00	18 . .	4.70
7 . . .	0.00	19 . .	0.00
8 . . .	0.00	20 . .	2.50
9 . . .	3.60	21 . .	2.40
10 . .	4.70	22 . .	2.30
11 . .	0.40	23 . .	0.00
12 . .	0.60	24 . .	4.80

IC1803			
1 . . .	2.40	13 . .	1.00
2 . . .	0.00	14 . .	0.00
3 . . .	1.70	15 . .	1.50
4 . . .	3.00	16 . .	1.80
5 . . .	1.20	17 . .	2.20
6 . . .	3.30	18 . .	0.20
7 . . .	4.10	19 . .	2.40
8 . . .	2.70	20 . .	2.40
9 . . .	2.30	21 . .	2.90
10 . .	2.40	22 . .	3.90
11 . .	4.90	23 . .	3.60
12 . .	3.30	24 . .	2.40

IC1804	
1 . . .	4.90
2 . . .	4.90
3 . . .	0.00

CONNECTOR Y1 (A15)	
1 . . .	0.00
2 . . .	1.10
3 . . .	0.00
4 . . .	2.60
5 . . .	2.80
6 . . .	0.00
7 . . .	2.60
8 . . .	2.70

CONNECTOR Y2 (A16)	
1 . . .	0.00
2 . . .	0.00
3 . . .	0.00
4 . . .	4.70
5 . . .	4.60
6 . . .	4.80
7 . . .	4.50
8 . . .	0.50

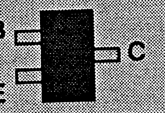

Q4251
MSB709T1
TP111
R4251
1k
TP112
C4251
0.1
R4250
56k
R4129
2V
L955
ELESN101JA
100
21V
C955
35V
220
R956
2.2k
D952
MA28WTX
C953
0.01
R955
2.2k
R948
2.2k
Q952
MSD601T1
R983
100
R957
680
R960
100k
L951
EXCELDR25V
L958
Q960
MSB709T1
D956
MA28WTX
L957
R961
10
R958
680
C954
25V
100
R959
2.2k
MA28WTX
D953
Q961
MSD601T1
Q953
MSB709T1
R949
2.2k
R984
100
L956 100
ELESN101JA
C941
16V
10
R942
22k
R945
1.2k
TPVM8
R951
10k
Q951
2SC1685QRSTA
Q958
MSD601T1
R946
470
C944
0.01
R952
2.7k
TPVM9
C942
0.047
Q959
MSD601T1
R953
470
R943
2.2k
R944
150
C943
120p
R947
820
R971
3.3k

	B	C	E
Q4101	2.70	11.80	2.60
Q4102	1.80	11.90	2.60
Q4103	2.80	11.80	2.70
Q4104	1.80	11.80	2.70
Q4105	1.80	11.80	2.60
Q4106	2.70	11.80	2.60
Q4107	1.10	0.00	1.80
Q4108	0.60	0.00	0.00
Q4109	0.10	9.10	0.00
Q4131	3.00	0.00	2.80
Q4132	2.80	10.70	2.50
Q4141	2.90	0.00	2.80
Q4142	2.80	10.70	2.50
Q4151	3.10	0.00	2.90

	B	C	E
Q4152	2.90	10.80	2.70
Q4154	6.30	0.00	2.90
Q4157	0.20	0.00	0.10
Q4201	1.00	7.10	0.40
Q4251	1.50	0.00	2.20
Q4254	0.00	11.80	0.00
Q951	2.40	10.70	1.80
Q952	11.30	19.40	10.80
Q953	10.10	0.00	10.70
Q958	1.00	8.50	0.40
Q959	8.50	11.80	7.80
Q960	10.70	0.00	11.30
Q961	10.70	19.40	10.10

MTC970570 3C1

CHIP TRANSISTOR LEAD DESIGNATION



Y–Board Voltage Measurements

7	4.80
8	0.00
9	2.40
0	2.40
1	2.50
2	0.00
3	4.90
4	2.40
5	2.40
6	0.00
7	4.80
8	4.90
9	0.60
0	0.40
1	4.60
2	3.70
3	0.00
4	0.00
5	0.00
6	3.60
7	3.60
8	3.20
49	4.50
50	4.40
51	4.50
52	0.00

IC1802			
1	4.20	13	4.80
2	3.20	14	4.80
3	0.00	15	0.00
4	3.60	16	2.20
5	0.00	17	2.10
6	0.00	18	4.70
7	0.00	19	0.00
8	0.00	20	2.50
9	3.60	21	2.40
10	4.70	22	2.30
11	0.40	23	0.00
12	0.60	24	4.80

IC1803			
1	2.40	13	1.00
2	0.00	14	0.00
3	1.70	15	1.50
4	3.00	16	1.80
5	1.20	17	2.20
6	3.30	18	0.20
7	4.10	19	2.40
8	2.70	20	2.40
9	2.30	21	2.90
10	2.40	22	3.90
11	4.90	23	3.60
12	3.30	24	2.40

IC1804	
1	4.90
2	4.90
3	0.00

CONNECTOR Y1 (A15)	
1	0.00
2	1.10
3	0.00
4	2.60
5	2.80
6	0.00
7	2.60
8	2.70

CONNECTOR Y2 (A16)	
1	0.00
2	0.00
3	0.00
4	4.70
5	4.60
6	4.80
7	4.50
8	0.50

Y–Board Transistors

	B	C	E
Q4351	0.60	0.00	1.20
Q4353	1.60	4.90	1.00
Q4354	1.20	0.00	1.90
Q4356	2.20	0.00	2.90
Q4357	2.70	4.90	2.30
Q4358	0.00	0.00	1.80
Q4360	0.50	0.50	0.00
Q4361	0.00	4.70	0.00
Q4362	4.40	3.50	4.60
Q4363	4.50	4.50	4.70
Q4364	3.70	4.90	3.10
Q4365	1.40	2.20	0.80
Q4366	0.60	0.00	0.00
Q4367	0.00	0.00	0.00
Q4369	4.50	0.40	4.80
Q4370	2.20	0.00	2.90
Q4371	2.40	4.90	2.30

IMPORTANT SAFETY NOTICE

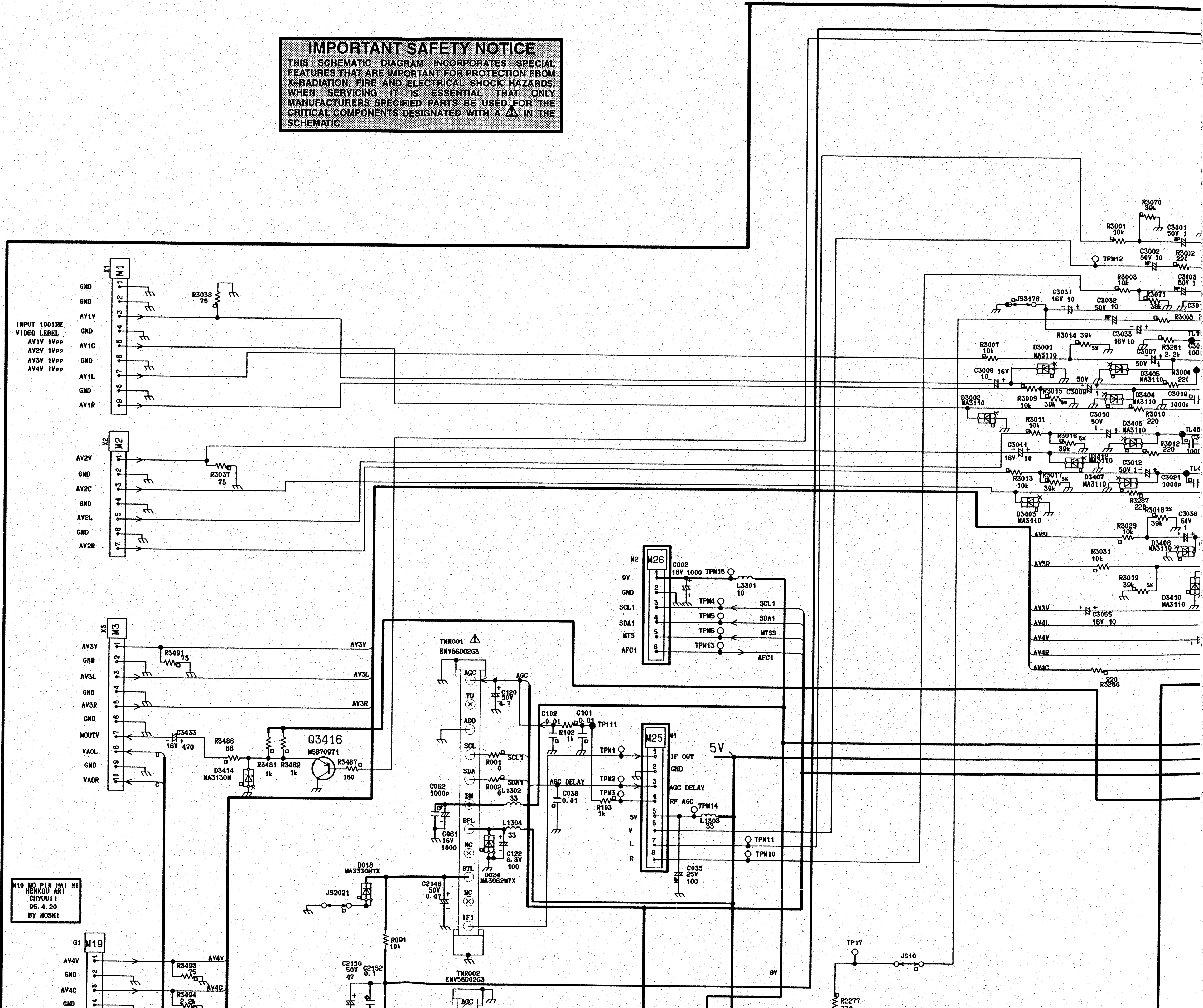
THIS SCHEMATIC DIAGRAM INCORPORATES SPECIAL FEATURES THAT ARE IMPORTANT FOR PROTECTION FROM X-RADIATION, FIRE AND ELECTRICAL SHOCK HAZARDS. WHEN SERVICING IT IS ESSENTIAL THAT ONLY MANUFACTURERS SPECIFIED PARTS BE USED FOR THE CRITICAL COMPONENTS DESIGNATED WITH A ⚠ IN THE SCHEMATIC.

All Models

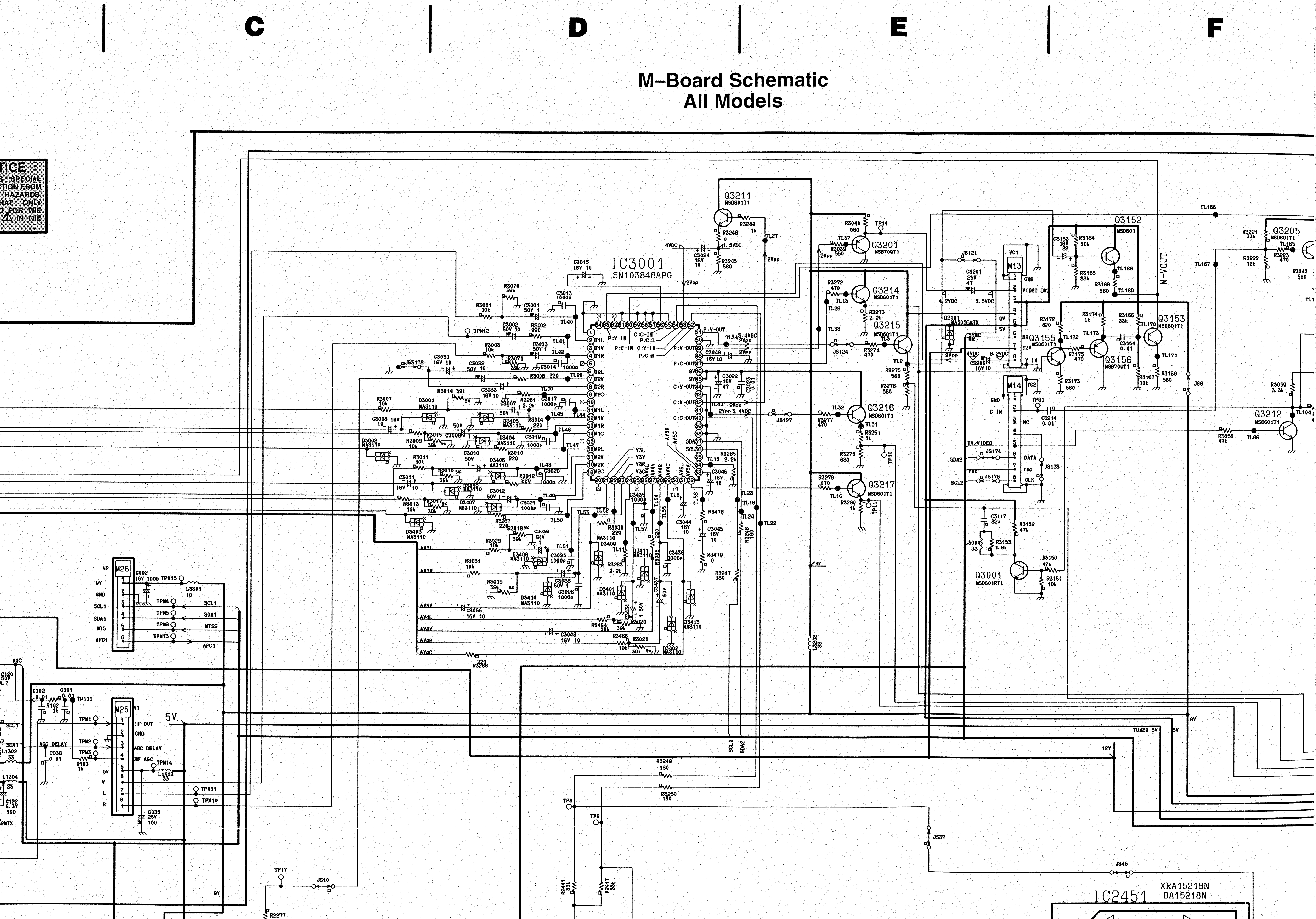
PT-51G50U/CU/LU/PU/TU PT-51G52V/CV/LV/PV/TV/XV PT-61G52V/CV

IMPORTANT SAFETY NOTICE

THIS SCHEMATIC DIAGRAM INCORPORATES SPECIAL FEATURES THAT ARE IMPORTANT FOR PROTECTION FROM X-RADIATION, FIRE AND ELECTRICAL SHOCK HAZARDS. WHEN SERVICING IT IS ESSENTIAL THAT ONLY MANUFACTURERS SPECIFIED PARTS BE USED FOR THE CRITICAL COMPONENTS DESIGNATED WITH A ⚠ IN THE SCHEMATIC.


INPUT 100IRE
VIDEO LEBEL
AV1V 1Vpp
AV2V 1Vpp
AV3V 1Vpp
AV4V 1Vpp
X1 M1
GND
AV1V
AV1C
AV1L
AV1R
R3038 75
X2 M2
AV2V
AV2C
AV2L
AV2R
R3037 75
X3 M3
AV3V
AV3L
AV3R
MOUTV
VAOL
VAOR
R3491 75
C3433 16V 470
R3486 68
D3414 MA3130M
R3481 1k
R3482 1k
Q3416
MSB709T1
R3487 180
M10 NO PIN HAI MI
HENKOU ARI
CHYUUI
95.4.20
BY HOSHI
G1 M19
AV4V
AV4C
R3493 75
R3494
TNR001 ⚠
ENV56D02G3
AGC
TU
ADD
SCL
SDA
BM
BPL
NC
BTL
IF1
C120 50V 4.7
C102 0.01
C101 0.01
R102 1k
TP111
R001 0
R002 0
L1302 33
L1304 33
C062 1000p
C061 16V 1000
C122 6.3V 100
D024 MA3062WTX
D018 MA3330HTX
JS2021
C2148 50V 0.47
R091 10k
C2150 50V 47
C2152 0.1
TNR002
ENV56002G3
N2 M26
9V
GND
SCL1
SDA1
MTS
AFC1
C002 16V 1000
TPM15
L3301 10
TPM4
TPM5
TPM6
TPM13
MTSS
N1 M25
TPM1
TPM2
TPM3
IF OUT
AGC DELAY
RF AGC
5V
V
L
R
C038 0.01
R103 1k
TPM14
L1303 33
TPM11
TPM10
C035 25V 100
TP17
JS10
R2277
R3070 39k
R3001 10k
C3001 50V 1
TPM12
C3002 50V 10
R3002 220
R3003 10k
C3003 50V 1
JS3178
C3031 16V 10
C3032 50V 10
R3071 39k
R3008
R3014 39k
C3033 16V 10
R3007 10k
D3001 MA3110
C3007
R3281 2.2k
C3008 16V 10
D3405 MA3110
R3004 220
D3002 MA3110
R3009 10k
R3015 39k
C3009
D3404 MA3110
C3019 1000p
R3011 10k
C3010 50V 1
D3406 MA3110
R3010 220
R3016 39k
R3012 220
C3011 16V 10
D3412 MA3110
C3012 50V 1
R3013 10k
R3017 39k
D3407 MA3110
C3021 1000p
D3403 MA3110
R3287 220
R3018
C3036 50V 1
R3029 10k
D3408 MA3110
AV3L
R3031 10k
AV3R
R3019 39k
D3410 MA3110
AV3V
C3055 16V 10
AV4L
AV4V
AV4R
AV4C
R3286 220

M–Board Schematic
All Models


C
D
E
F
TICE
S SPECIAL
CTION FROM
HAZARDS.
HAT ONLY
D FOR THE
IN THE
IC3001
SN103848APG
Q3211
MSD601T1
Q3201
MSB709T1
Q3214
MSD601T1
Q3215
MSD601T1
Q3216
MSD601T1
Q3217
MSD601T1
Q3152
MSD601
Q3153
MSD601T1
Q3155
MSD601T1
Q3156
MSB709T1
Q3205
MSD601T1
Q3212
MSD601T1
Q3001
MSD601RT1
M13
M14
M25
M26
YC1
YC2
M-VOUT
VIDEO OUT
GND
C IN
NC
DATA
fsc
CLK
TV/VIDEO
SDA2
SCL2
IF OUT
AGC DELAY
RF AGC
SCL1
SDA1
MTSS
AFC1
9V
5V
12V
TUNER 5V
L3203
33
JS127
JS124
JS121
JS174
JS176
JS123
JS6
JS37
JS45
JS10
TP8
TP9
TP17
TP10
TP11
TP14
TP91
TPM4
TPM5
TPM6
TPM13
TPM15
TPM1
TPM2
TPM3
TPM10
TPM11
TPM12
TPM14
TP111
TL166
TL167
L3301
L1302
L1303
L1304
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R3250
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R2417
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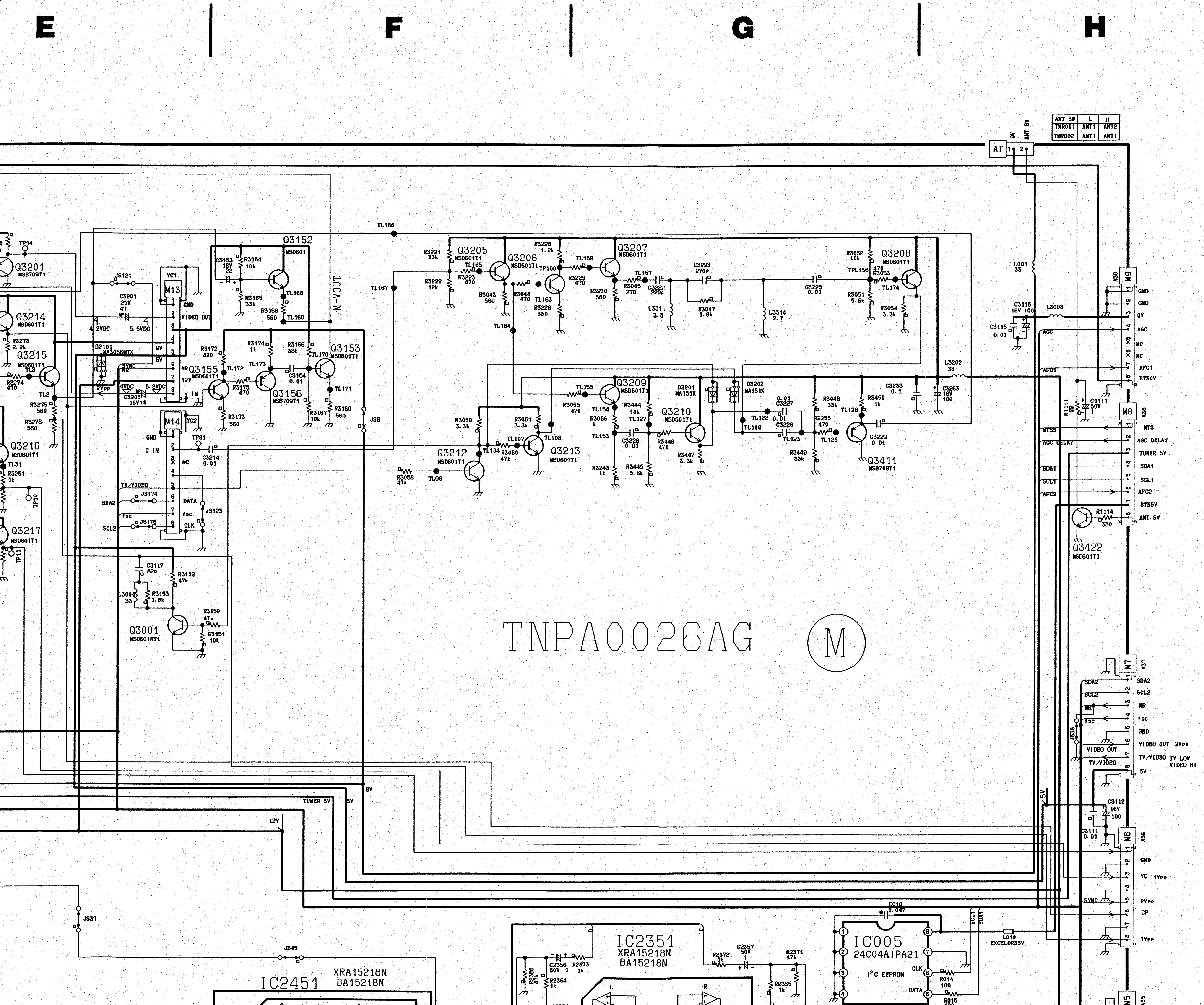
R2277
IC2451
XRA15218N
BA15218N


E
F
G
H
ANT SW | L | H
TNR001 | ANT1 | ANT2
TNR002 | ANT1 | ANT1
AT
9V
ANT SW
TL166
Q3152
MSD601
Q3201
MSB709T1
TP14
Q3214
MSD601T1
Q3215
MSD601T1
R3273
2.2k
R3274
470
R3275
560
R3276
560
TL2
TL3
Q3216
MSD601T1
TL31
R3251
1k
TP10
Q3217
MSD601T1
TP11
JS121
C3201
25V
47
4.2VDC
5.5VDC
D2101
MA3056MTX
SYNC
NR
2Vpp
4VDC
6.2VDC
C3205
16V 10
YC1
M13
GND
VIDEO OUT
9V
5V
NR
12V
IN
C3153
16V
22
R3164
10k
R3165
33k
R3168
560
TL168
TL169
M-VOUT
R3172
820
R3174
1k
R3166
33k
Q3153
MSD601T1
TL170
Q3155
MSD601T1
TL172
TL173
R3175
470
C3154
0.01
Q3156
MSB709T1
R3173
560
R3167
10k
R3169
560
TL171
JS6
M14
YC2
GND
C IN
TP91
NC
C3214
0.01
TV/VIDEO
JS174
SDA2
DATA
fsc
JS176
CLK
SCL2
JS123
C3117
82p
R3152
47k
L3004
33
R3153
1.8k
R3150
47k
R3151
10k
Q3001
MSD601RT1
TL167
Q3205
MSD601T1
R3221
33k
R3222
12k
R3223
470
TL165
R3043
560
Q3206
MSD601T1
R3044
470
R3228
1.2k
TP160
TL163
R3226
330
R3229
470
TL159
Q3207
MSD601T1
R3230
560
TL157
R3045
270
C3222
220p
C3223
270p
L3311
3.3
R3047
1.8k
L3314
2.7
C3225
0.01
R3052
10k
Q3208
MSD601T1
TPL156
R3053
470
TL174
R3051
5.6k
R3054
3.3k
TL164
L3202
33
Q3209
MSD601T1
TL155
R3055
470
TL154
R3056
0
TL153
R3444
10k
TL127
C3226
0.01
R3243
1k
R3445
5.6k
D3201
MA151K
Q3210
MSD601T1
R3446
470
R3447
3.3k
D3202
MA151K
C3227
0.01
TL122
TL109
C3228
0.01
TL123
R3449
33k
R3448
33k
R3255
470
TL125
TL126
R3450
1k
Q3411
MSB709T1
C3229
0.01
C3233
0.1
C3263
16V
100
R3059
3.3k
R3061
3.3k
TL107
TL108
R3060
47k
TL104
Q3213
MSD601T1
Q3212
MSD601T1
R3058
47k
TL96
L001
33
C3116
16V 100
L3003
C3115
0.01
AGC
AFC1
R1111
22
C1111
50V
1
M9
A39
GND
GND
9V
AGC
NC
NC
AFC1
BT30V
M8
A38
MTS
AGC DELAY
TUNER 5V
SDA1
SCL1
AFC2
STB5V
ANT.SW
MTS5
R1114
330
Q3422
MSD601T1
TNPA0026AG
M
M7
A37
SDA2
SCL2
NR
fsc
GND
VIDEO OUT 2Vpp
TV/VIDEO TV LOW
VIDEO HI
5V
JS38
C3112
16V
100
C3111
0.01
M6
A36
GND
YC 1Vpp
SYNC
2Vpp
CP
1Vpp
TUNER 5V
5V
9V
12V
JS37
JS45
IC2451
XRA15218N
BA15218N
IC2351
XRA15218N
BA15218N
C2356
50V 1
R2373
1k
R2364
1k
R2372
1k
C2357
50V
1
R2371
47k
R2365
1k
L
R
C010
0.047
IC005
24C04AIPA21
I²C EEPROM
CLK
DATA
R014
100
R015
SCL1
SDA1
L010
EXCELDR35V
M5
A35

3

MTC9705703C1

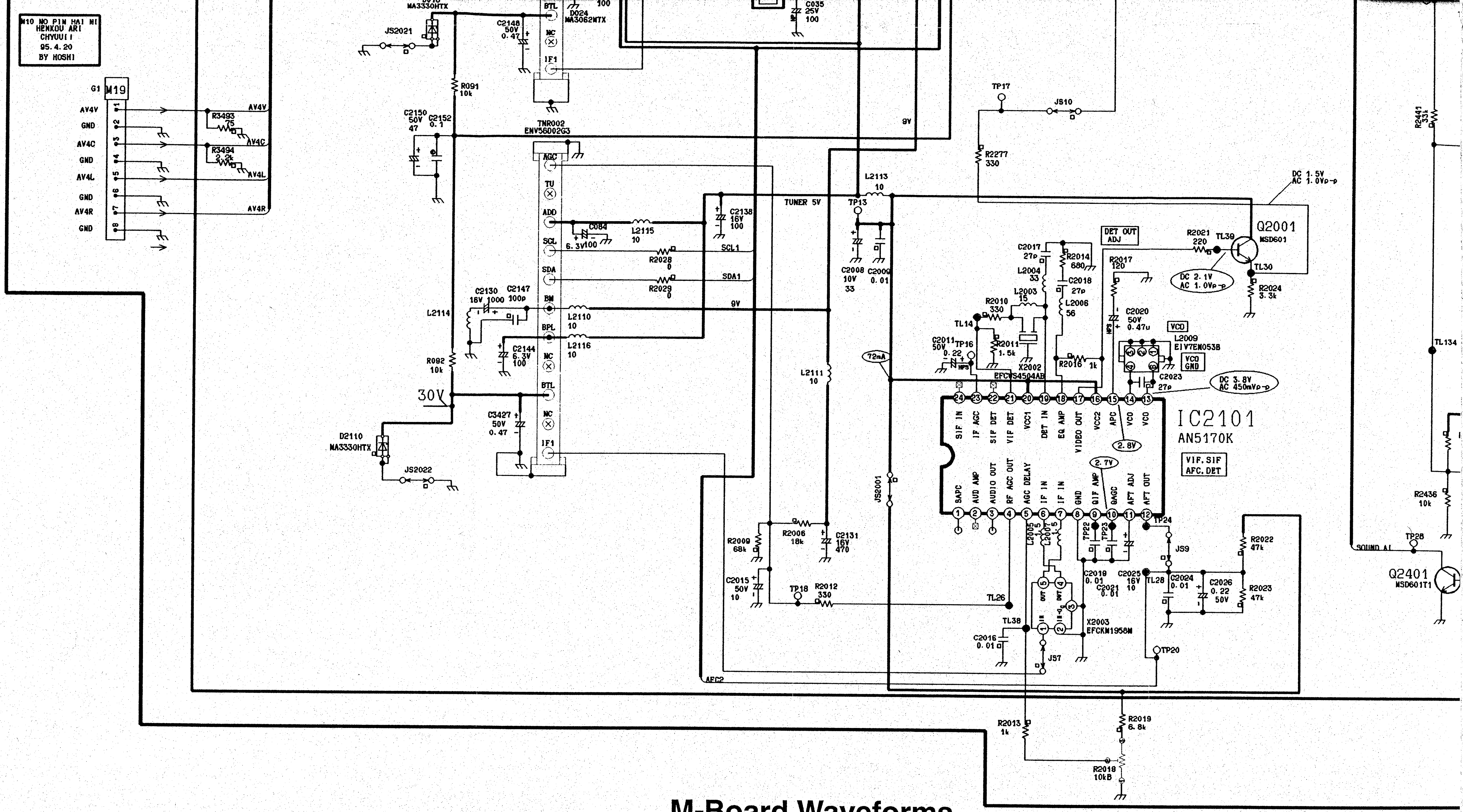
Sheet 3 of 6
Side A

4

Waveforms & Voltages
All Models
PT–51G50U/CU/LU/PU/TU PT–51G52V/CV/LV/PV/TV/XV PT–61G52V/CV

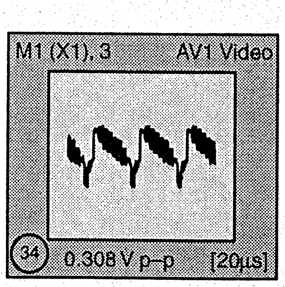
5

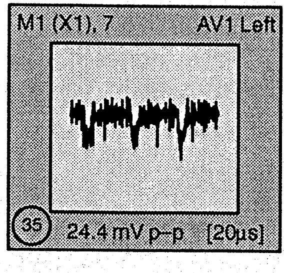
A3

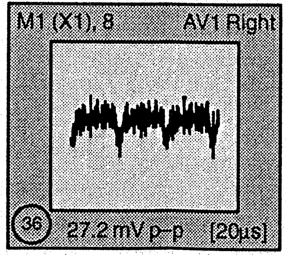


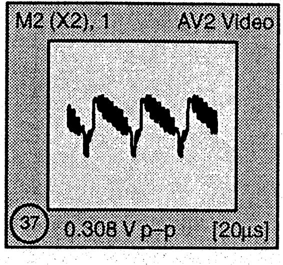
M10 NO PIN HAI MI
HENKOU ARI
CHYUUI
95.4.20
BY HOSHI
G1 M19
AV4V
GND
AV4C
GND
AV4L
GND
AV4R
GND
R3493 75
R3494 2.2k
MA3330HTX
JS2021
C2148 50V 0.47
BTL
D024 MA3062WTX
NC
IF1
C035 25V 100
R091 10k
C2150 50V 47
C2152 0.1
TNR002 ENV56D02G3
AGC
TU
ADD
C084 6.3V100
L2115 10
SCL
SCL1
R2028 0
SDA
SDA1
R2029 0
C2130 16V 1000
C2147 100p
BM
L2114
L2110 10
BPL
C2144 6.3V 100
L2116 10
R092 10k
30V
C3427 50V 0.47
D2110 MA3330HTX
JS2022
9V
TUNER 5V
C2138 16V 100
TP13
L2113 10
TP17
JS10
R2277 330
C2008 10V 33
C2009 0.01
L2111 10
72mA
JS2001
R2009 68k
R2006 18k
C2131 16V 470
C2015 50V 10
TP18
R2012 330
DET OUT ADJ
R2021 220
TL39
Q2001 MSD601
TL30
R2024 3.3k
DC 1.5V AC 1.0Vp-p
DC 2.1V AC 1.0Vp-p
R2017 120
C2017 27p
R2014 680
L2004 33
C2018 27p
L2003 15
L2006 56
R2010 330
TL14
C2011 50V 0.22
TP16
R2011 1.5k
X2002 EFCVS4504AB
R2016 1k
C2020 50V 0.47u
VCO
L2009 EIV7EN0538
VCO GND
C2023 27p
DC 3.8V AC 450mVp-p
IC2101
AN5170K
VIF.SIF AFC.DET
SIF IN
IF AGC
SIF DET
VIF DET
VCC1
DET IN
EQ AMP
VIDEO OUT
VCC2
APC
VCO
VCO
SAPC
AUD AMP
AUDIO OUT
RF AGC OUT
AGC DELAY
IF IN
IF IN
GND
GIF AMP
ΦAGC
AFT ADJ
AFT OUT
2.8V
2.7V
TP22
TP23
TP24
JS9
R2022 47k
R2023 47k
C2026 0.22 50V
C2024 0.01
TL28
C2025 16V 10
C2019 0.01
C2021 0.01
X2003 EFCKM1958M
L2005
TL26
TL38
C2016 0.01
JS7
TP20
AFC2
R2013 1k
R2019 6.8k
R2018 10kB
R2441
TL134
R2436 10k
TP28
SOUND AI
Q2401 MSD601T1

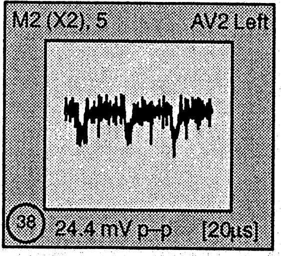
M-Board Waveforms

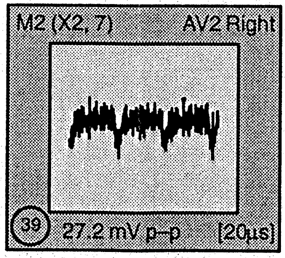


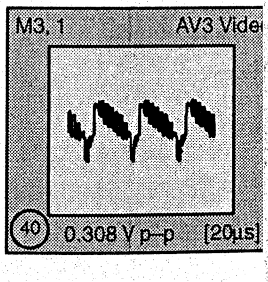


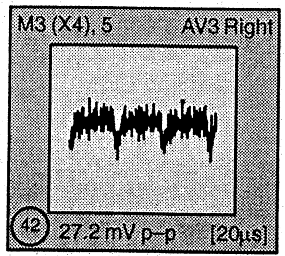


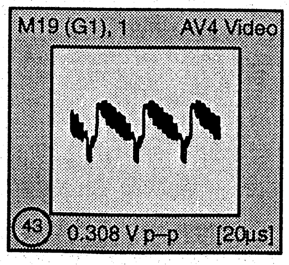


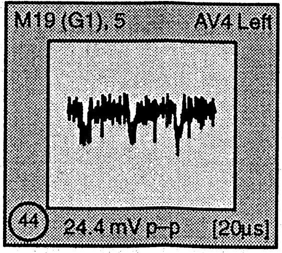


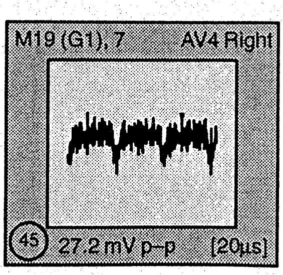


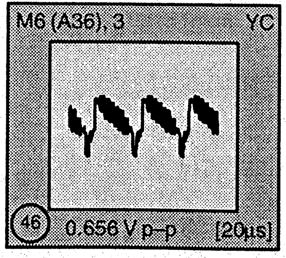


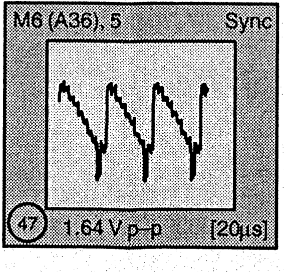


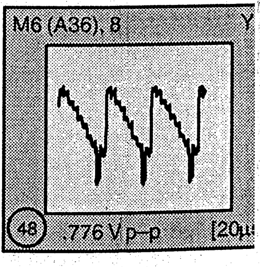


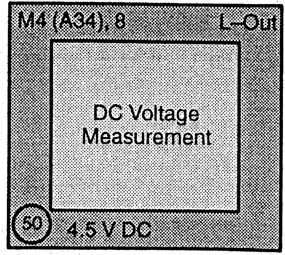


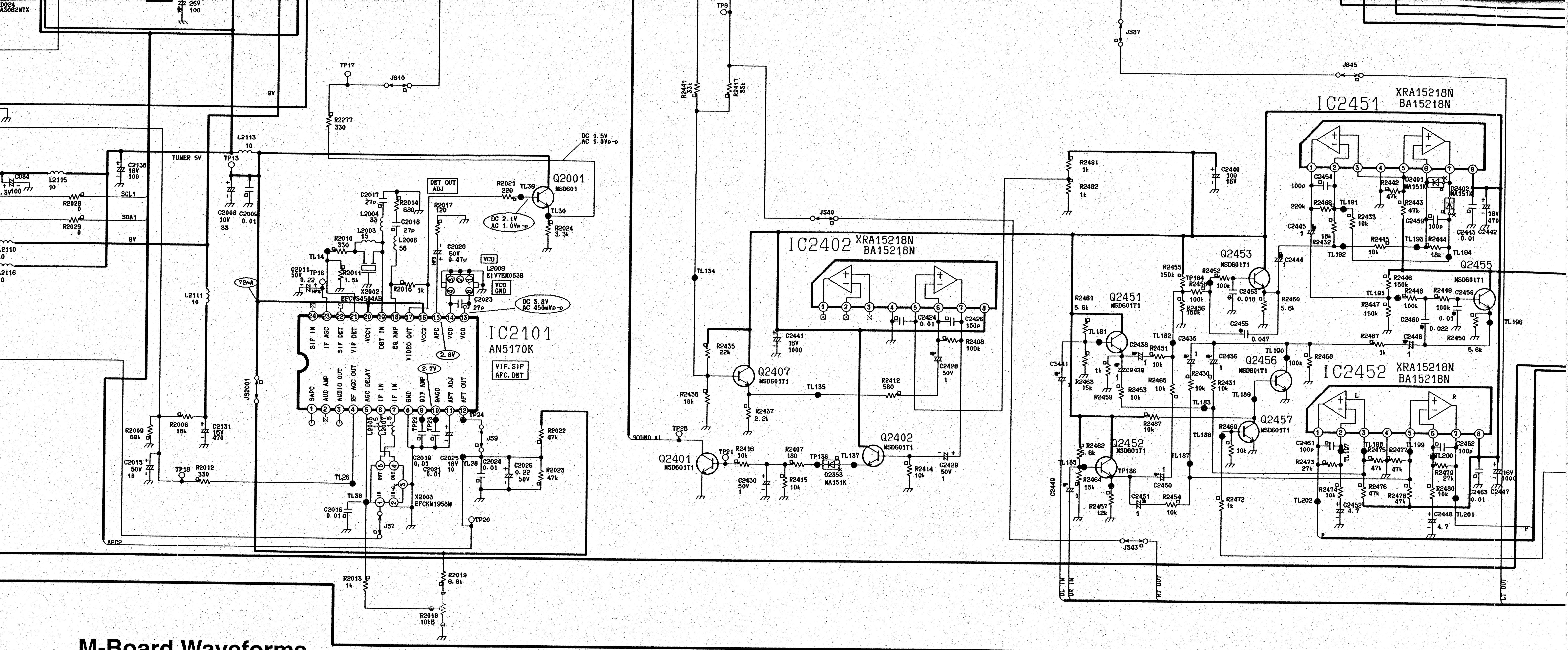




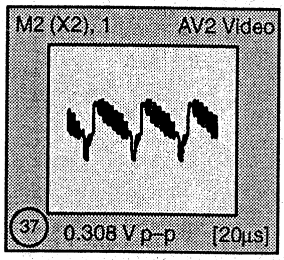


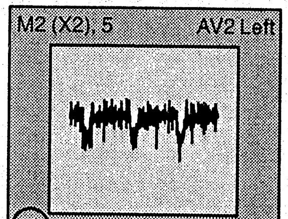


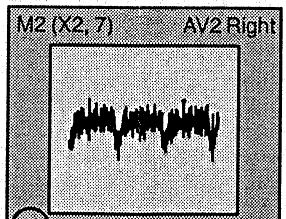


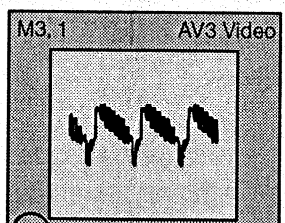

IC2101
AN5170K
VIF.SIF
AFC.DET
IC2402 XRA15218N
BA15218N
IC2451 XRA15218N
BA15218N
IC2452 XRA15218N
BA15218N
Q2001 MSD601
Q2401 MSD601T1
Q2402 MSD601T1
Q2407 MSD601T1
Q2451 MSD601T1
Q2452 MSD601T1
Q2453 MSD601T1
Q2455 MSD601T1
Q2456 MSD601T1
Q2457 MSD601T1
DC 1.5V
AC 1.0Vp-p
DC 2.1V
AC 1.0Vp-p
DC 3.8V
AC 450mVp-p
2.8V
2.7V
72mA
TUNER 5V
9V
SCL1
SDA1
AFC2
SOUND A1
DET OUT ADJ
VCO
VCO GND
L2009 EIV7EN0538
X2002 EFCV54504AB
X2003 EFCKM1958M
D2353 MA151K
D2401 MA151K
D2402 MA151K
SIF IN
IF AGC
SIF DET
VIF DET
VCC1
DET IN
EQ AMP
VIDEO OUT
VCC2
APC
VCO
SAPC
AUD AMP
AUDIO OUT
RF AGC OUT
AGC DELAY
IF IN
GND
SIF AMP
SAGC
AFT ADJ
AFT OUT
L2113 10
L2111 10
L2115 10
R2277 330
R2021 220
R2024 3.3k
R2014 680
R2017 120
R2010 330
R2011 1.5k
R2016 1k
R2009 68k
R2006 18k
R2012 330
R2022 47k
R2023 47k
R2013 1k
R2019 6.8k
R2018 10kB
R2441 33k
R2417 33k
R2435 22k
R2436 10k
R2437 2.2k
R2412 560
R2408 100k
R2416 10k
R2407 180
R2415 10k
R2414 10k
R2481 1k
R2482 1k
JS10
JS40
JS45
JS37
JS43
JS9
JS7
JS2001
TP9
TP13
TP16
TP17
TP18
TP20
TP24
TP28
TP21
TP136
TL134
TL135
TL137
L IN
R IN
RT OUT
LT OUT

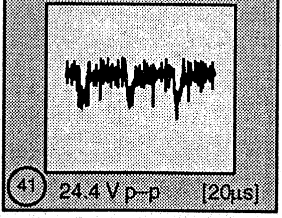
M-Board Waveforms

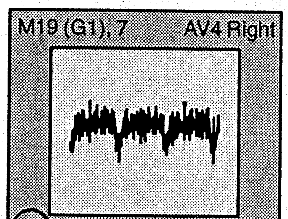

M2 (X2), 1 AV2 Video
㊲ 0.308 V p-p [20µs]

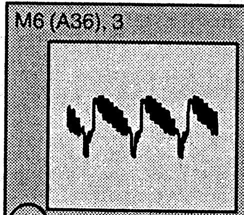

M2 (X2), 5 AV2 Left
㊳ 24.4 mV p-p [20µs]

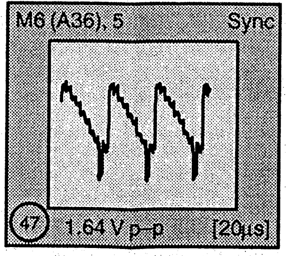

M2 (X2), 7 AV2 Right
㊴ 27.2 mV p-p [20µs]

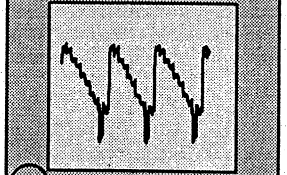

M3, 1 AV3 Video
㊵ 0.308 V p-p [20µs]

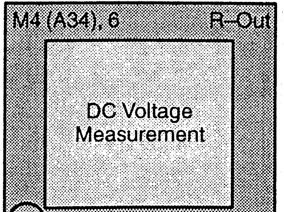

M3, 3 AV3 Left
㊶ 24.4 V p-p [20µs]


M19 (G1), 7 AV4 Right
㊺ 27.2 mV p-p [20µs]


M6 (A36), 3 YC
㊻ 0.656 V p-p [20µs]


M6 (A36), 5 Sync
㊼ 1.64 V p-p [20µs]


M6 (A36), 8 YP
㊽ 776 V p-p [20µs]


M4 (A34), 6 R–Out
DC Voltage Measurement
㊾ 4.5 V DC

M–Board Voltage Measurement

IC3001							
01	0.00	17	4.10	33	4.40	49	3.50
02	4.40	18	4.40	34	0.30	50	0.00
03	4.10	19	0.40	35	0.00	51	3.50
04	4.40	20	0.10	36	5.00	52	3.80
05	0.10	21	4.40	37	4.80	53	4.10
06	4.40	22	4.10	38	0.00	54	3.80
07	4.10	23	4.40	39	0.00	55	0.00
08	4.40	24	0.30	40	3.50	56	4.10
09	0.30	25	0.10	41	0.00	57	0.00
10	0.10	26	4.40	42	3.50	58	0.00
11	4.40	27	4.10	43	0.00	59	0.00
12	4.10	28	4.40	44	3.50	60	4.10
13	4.40	29	0.40	45	8.50	61	0.00
14	0.40	30	0.10	46	8.50	62	3.80
15	0.10	31	4.30	47	3.50	63	4.10
16	4.40	32	4.10	48	4.40	64	3.80

IC2101			
01	2.10	13	3.50
02	2.00	14	3.50
03	2.40	15	3.40
04	4.00	16	4.90
05	2.40	17	2.70
06	2.50	18	2.50
07	2.50	19	2.50
08	0.00	20	4.90
09	2.50	21	2.50
10	1.10	22	2.30
11	4.60	23	2.40
12	4.50	24	2.00

IC23	
01	
02	
03	
04	
05	
06	
07	
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IC24	
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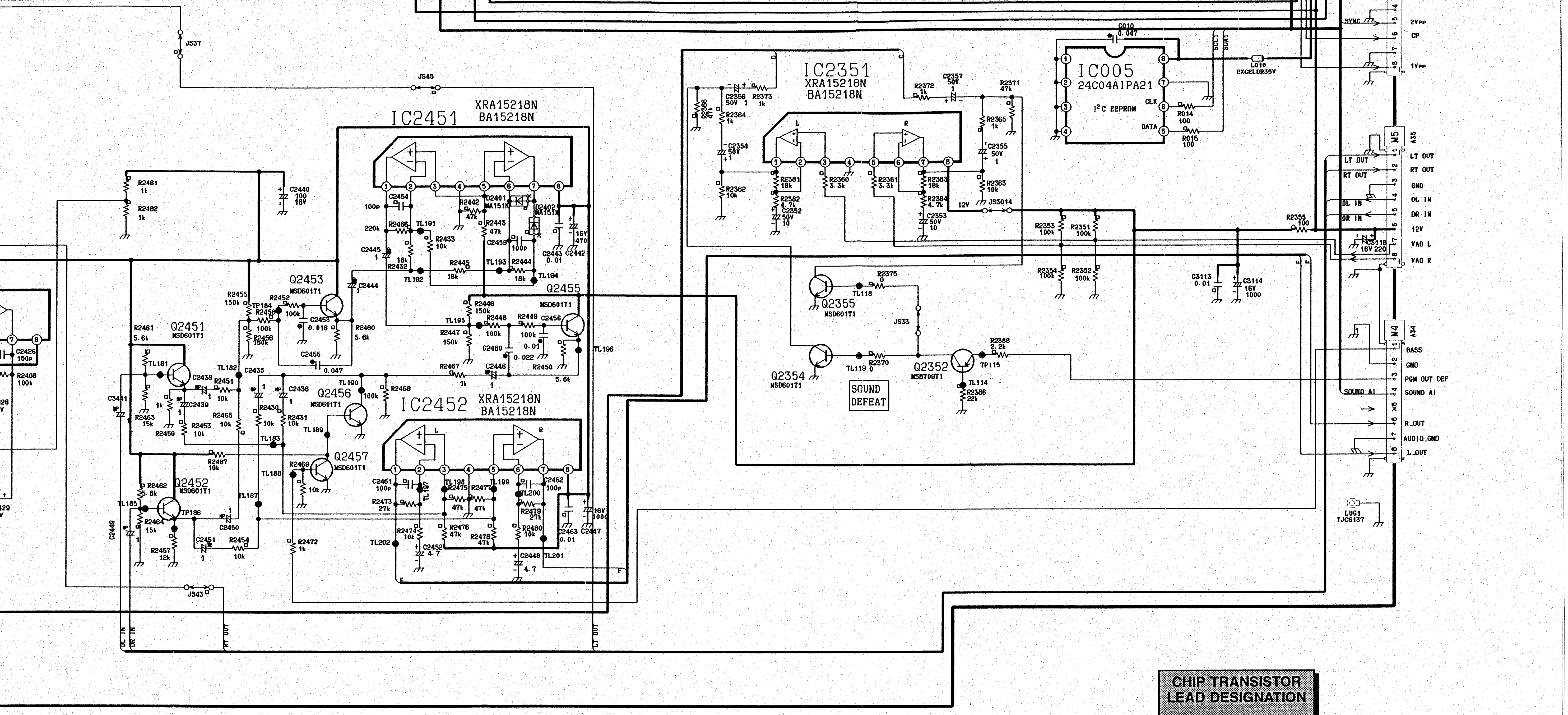
05	
06	
07	
08	1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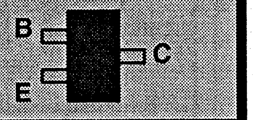
BA15218N
IC2452
XRA15218N
BA15218N
IC2351
XRA15218N
BA15218N
IC005
24C04AIPA21
I²C EEPROM
CLK
DATA
Q2451
MSD601T1
Q2452
MSD601T1
Q2453
MSD601T1
Q2455
MSD601T1
Q2456
MSD601T1
Q2457
MSD601T1
Q2355
MSD601T1
Q2354
MSD601T1
Q2352
MSB709T1
SOUND DEFEAT
JS37
JS45
JS43
JS33
JS3014
L010
EXCELDR35V
C010
0.047
LUG1
TJC6137
M5
A35
M4
A34
SYNC
2Vpp
CP
1Vpp
LT OUT
RT OUT
GND
DL IN
DR IN
12V
VAO L
VAO R
BASS
GND
PGM OUT DEF
SOUND AI
R_OUT
AUDIO_GND
L_OUT
SOUND AI
SCL1
SDA1
DL IN
DR IN
RT OUT
LT OUT
C3113
0.01
C3114
16V
1000
C3118
16V 220
R2355
100
R2353
100k
R2351
100k
R2354
100k
R2352
100k
R2375
0
R2370
0
R2388
2.2k
R2386
22k
TP115
TL114
TL118
TL119
R014
100
R015
100

CHIP TRANSISTOR LEAD DESIGNATION



M–Board Voltage Measurements

IC3001

01 .. 0.00	17 .. 4.10	33 .. 4.40	49 .. 3.50
02 .. 4.40	18 .. 4.40	34 .. 0.30	50 .. 0.00
03 .. 4.10	19 .. 0.40	35 .. 0.00	51 .. 3.50
04 .. 4.40	20 .. 0.10	36 .. 5.00	52 .. 3.80
05 .. 0.10	21 .. 4.40	37 .. 4.80	53 .. 4.10
06 .. 4.40	22 .. 4.10	38 .. 0.00	54 .. 3.80
07 .. 4.10	23 .. 4.40	39 .. 0.00	55 .. 0.00
08 .. 4.40	24 .. 0.30	40 .. 3.50	56 .. 4.10
09 .. 0.30	25 .. 0.10	41 .. 0.00	57 .. 0.00
10 .. 0.10	26 .. 4.40	42 .. 3.50	58 .. 0.00
11 .. 4.40	27 .. 4.10	43 .. 0.00	59 .. 0.00
12 .. 4.10	28 .. 4.40	44 .. 3.50	60 .. 4.10
13 .. 4.40	29 .. 0.40	45 .. 8.50	61 .. 0.00
14 .. 0.40	30 .. 0.10	46 .. 8.50	62 .. 3.80
15 .. 0.10	31 .. 4.30	47 .. 3.50	63 .. 4.10
16 .. 4.40	32 .. 4.10	48 .. 4.40	64 .. 3.80

IC2101

01. . 2.10	13 .. 3.50
02 .. 2.00	14 .. 3.50
03 .. 2.40	15 .. 3.40
04 .. 4.00	16 .. 4.90
05 .. 2.40	17 .. 2.70
06 .. 2.50	18 .. 2.50
07 .. 2.50	19 .. 2.50
08 .. 0.00	20 .. 4.90
09 .. 2.50	21 .. 2.50
10 .. 1.10	22 .. 2.30
11 .. 4.60	23 .. 2.40
12 .. 4.50	24 .. 2.00

IC2351

01 .. 5.30
02 .. 5.30
03 .. 5.30
04 .. 0.00
05 .. 5.30
06 .. 5.30
07 .. 5.30
08 . 10.70

IC2402

01 . 10.50
02 .. 2.00
03 .. 1.90
04 .. 0.00
05 .. 5.30
06 .. 5.30
07 .. 5.30
08 . 10.70

IC005

01 .. 0.00
02 .. 0.00
03 .. 0.00
04 .. 0.00
05 .. 4.90
06 .. 4.90
07 .. 0.00
08 .. 5.30

IC2451

01 .. 5.30
02 .. 5.30
03 .. 5.30
04 .. 0.00
05 .. 5.30
06 .. 5.30
07 .. 5.30
08 . 10.70

IC2452

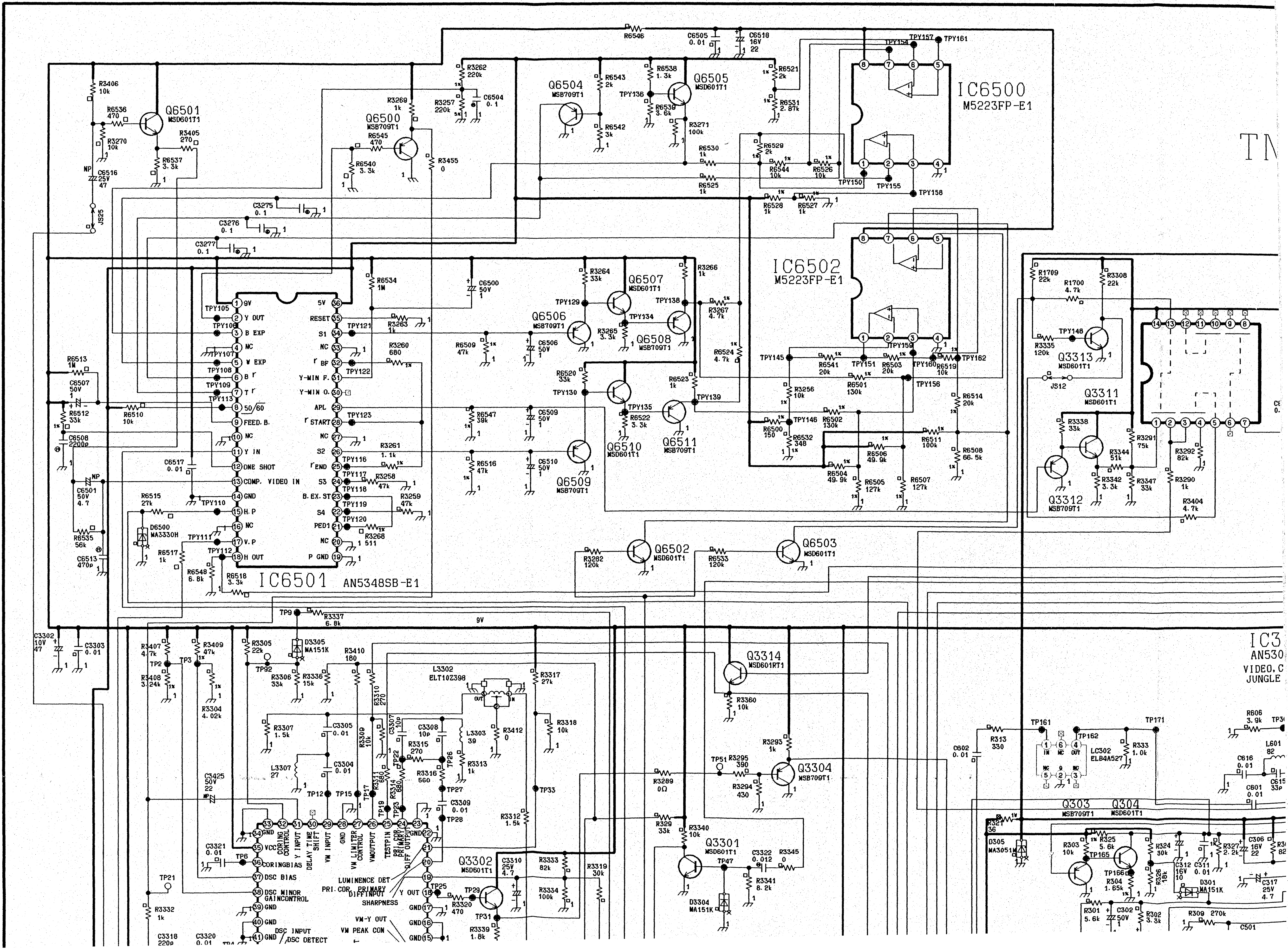
01 .. 5.30
02 .. 5.30
03 .. 5.30
04 .. 0.00
05 .. 5.20
06 .. 5.20
07 .. 5.20
08 . 10.70

M–Board Transistors

	B	C	E
Q2401	0.70	0.00	0.00
Q2402	0.00	3.00	0.00
Q2407	3.40	10.70	2.80
Q2451	7.80	10.70	7.10
Q2452	7.80	10.70	7.20
Q2453	4.50	10.70	0.00
Q2455	4.50	10.70	4.00
Q2456	0.70	0.00	0.00
Q2457	0.00	0.70	0.00
Q3152	3.70	4.90	3.10
Q3153	1.00	2.70	0.50
Q3155	0.00	3.40	0.00
Q3156	2.10	0.00	2.80
Q3201	3.50	0.00	4.10
Q3205	2.90	11.80	2.30

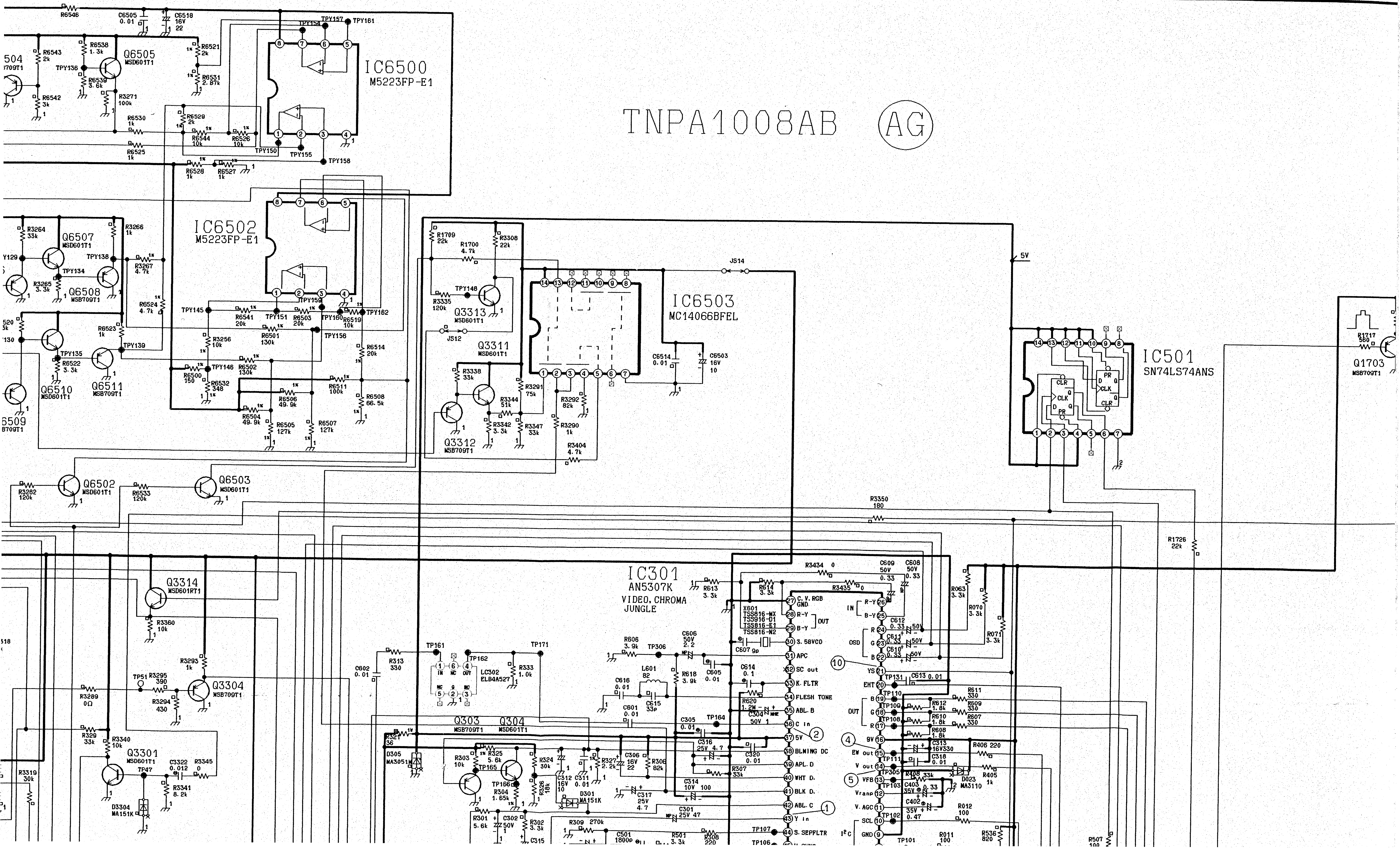
	B	C	E
Q3206	2.30	5.50	1.70
Q3207	5.50	11.80	4.80
Q3208	4.20	11.80	3.60
Q3209	2.30	11.80	1.70
Q3210	4.20	11.80	5.20
Q3211	3.40	8.50	2.80
Q3212	0.00	5.90	0.00
Q3213	0.60	0.00	0.00
Q3214	3.50	8.50	2.80
Q3215	3.50	8.50	2.80
Q3216	3.50	8.50	2.80
Q3217	3.50	8.50	2.80
Q3411	6.20	0.00	6.90
Q3416	2.70	0.00	3.40
Q3422	0.80	0.00	0.10

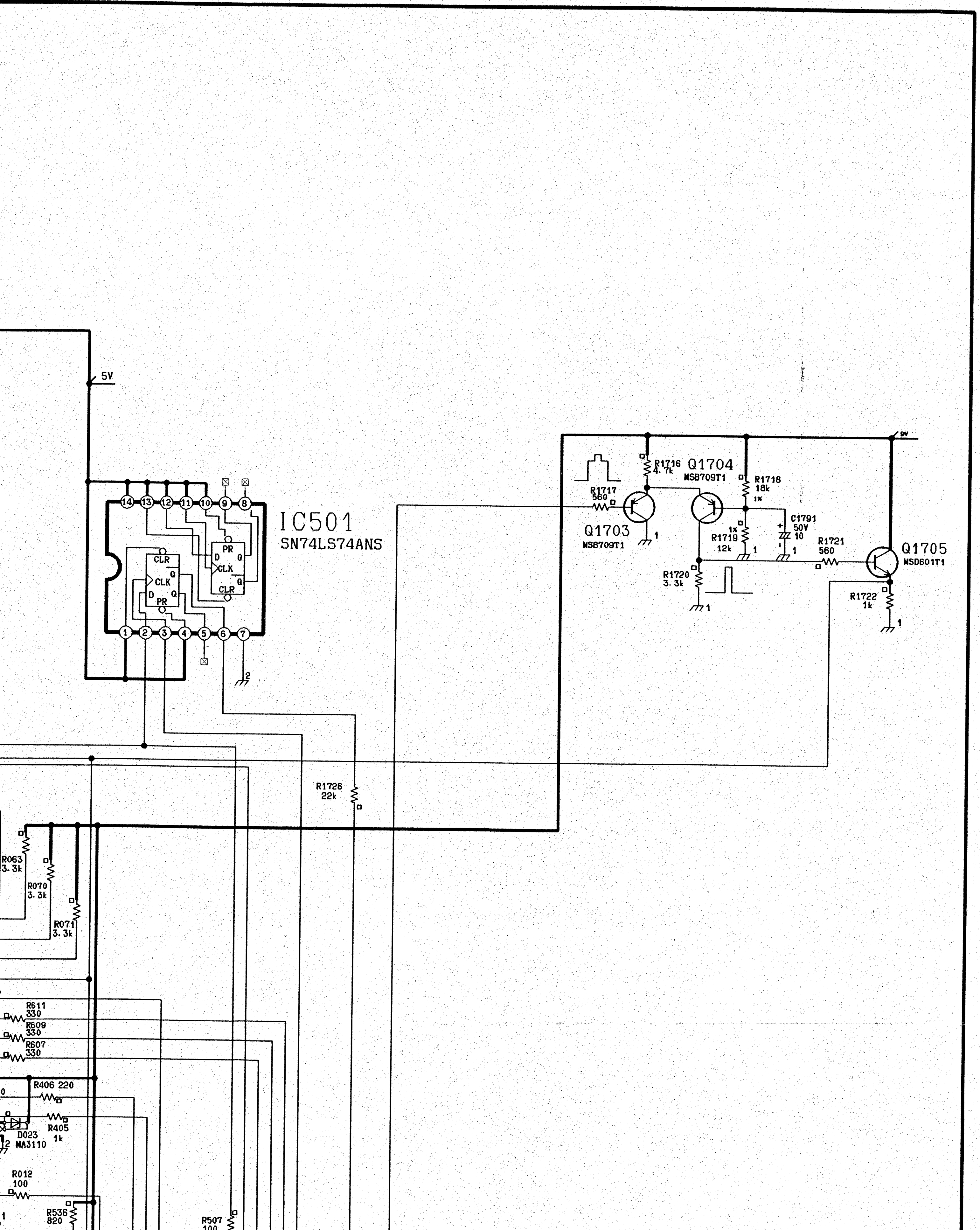
AG–Board Schem
All Models


A
B
C
D
1
2
3
IC6501
AN5348SB-E1
IC6500
M5223FP-E1
IC6502
M5223FP-E1
Q6500
MSB709T1
Q6501
MSD601T1
Q6502
MSD601T1
Q6503
MSD601T1
Q6504
MSB709T1
Q6505
MSD601T1
Q6506
MSB709T1
Q6507
MSD601T1
Q6508
MSB709T1
Q6509
MSB709T1
Q6510
MSD601T1
Q6511
MSB709T1
Q3311
MSD601T1
Q3312
MSB709T1
Q3313
MSD601T1
Q3314
MSD601RT1
Q3301
MSD601T1
Q3302
MSD601T1
Q3304
MSB709T1
Q303
MSB709T1
Q304
MSD601T1
IC3
AN530
VIDEO, C
JUNGLE
L3302
ELT10Z398
LC302
ELB4A527
D6500
MA3330H
D3305
MA151K
D3304
MA151K
D305
MA3051M
D301
MA151K
9V
Y OUT
B EXP
NC
W EXP
B r
T r
50/60
FEED. B.
NC
Y IN
ONE SHOT
COMP. VIDEO IN
GND
H. P
NC
V. P
H OUT
5V
RESET
S1
NC
BF
Y-MIN F.
Y-MIN O.
APL
START
NC
S2
END
S3
B. EX. ST
S4
PED1
NC
P GND
GND
VCC
CORINGBIAS
DSC BIAS
DSC MINOR GAINCONTROL
GND
GND
GND
DSC INPUT
DSC DETECT
DELAY TIME SHIFT
Y INPUT
CORING CONTROL
VM INPUT
GND
VM LIMITER CONTROL
VMOUTPUT
TESTPIN
PRI. COR.
PRIMARY DIFF OUTPUT
LUMINENCE DET
PRI. COR. PRIMARY DIFFINPUT
SHARPNESS
Y OUT
VM-Y OUT
VM PEAK CON
J512
JS25

C D E F

AG–Board Schematics
All Models


TNPA1008AB
AG
IC6500
M5223FP-E1
IC6502
M5223FP-E1
IC6503
MC14066BFEL
IC501
SN74LS74ANS
IC301
AN5307K
VIDEO, CHROMA JUNGLE
Q6505 MSD601T1
Q6507 MSD601T1
Q6508 MSB709T1
Q6510 MSD601T1
Q6511 MSB709T1
6509 B709T1
Q6502 MSD601T1
Q6503 MSD601T1
Q3313 MSD601T1
Q3311 MSD601T1
Q3312 MSB709T1
Q3314 MSD601RT1
Q3304 MSB709T1
Q3301 MSD601T1
Q303 MSB709T1
Q304 MSD601T1
Q1703 MSB709T1
D3304 MA151K
D305 MA3051M
D301 MA151K
D023 MA3110
X601 TSS816-MX TSS916-01 TSS816-E1 TSS816-N2
LC302 ELB4A527
JS14
JS12
5V
CLR PR CLK D Q
C.V.RGB GND
R-Y
B-Y
OUT
IN
3.58VCO
APC
SC out
K.FLTR
FLESH TONE
ABL.B
C in
5V
BLMING DC
APL.D
WHT D.
BLK D.
ABL.C
Y in
S.SEPFLTR
OSD
YS
EHT
B
G
R
9V
EW out
V out
VFB
Vramp
V.AGC
SCL
GND
I²C
R3350 180
R1726 22k
R1717 560
R3434 0
R3435 0
R613 3.3k
R614 3.3k
R606 3.9k
R618 3.9k
R620 1.2M
R313 330
R333 1.0k
R3293 1k
R3295 390
R3294 430
R3289 0Ω
R3329 33k
R3340 10k
R3341 8.2k
R3345 0
R3319 30k
R3360 10k
R3282 120k
R6533 120k
R1709 22k
R1700 4.7k
R3308 22k
R3335 120k
R3338 33k
R3344 51k
R3342 3.3k
R3347 33k
R3291 75k
R3292 82k
R3290 1k
R3404 4.7k
R6546
R6543 2k
R6542 3k
R6538 1.3k
R6539 3.6k
R3271 100k
R6521 2k
R6531 2.87k
R6529 2k
R6530 1k
R6525 1k
R6544 10k
R6526 10k
R6528 1k
R6527 1k
R3264 33k
R3266 1k
R3267 4.7k
R3265 3.3k
R6524 4.7k
R6523 1k
R6522 3.3k
R6541 20k
R6503 20k
R6519 10k
R6501 130k
R3256 10k
R6502 130k
R6500 150
R6532 348
R6514 20k
R6511 100k
R6508 66.5k
R6506 49.9k
R6504 49.9k
R6505 127k
R6507 127k
R063 3.3k
R070 3.3k
R071 3.3k
R611 330
R609 330
R607 330
R612 1.8k
R610 1.8k
R608 1.8k
R406 220
R405 1k
R408 33k
R012 100
R011 100
R536 820
R507 100
R303 10k
R325 5.6k
R324 30k
R326 18k
R304 1.65k
R301 5.6k
R302 3.3k
R309 270k
R327 2.2k
R306 82k
R307 33k
R501 3.3k
R308 220
R321 36
C6505 0.01
C6518 16V 22
C6514 0.01
C6503 16V 10
C609 50V 0.33
C608 50V 0.33
C612 0.33 50V
C611 0.33 50V
C610 0.33 50V
C613 0.01
C313 16V330
C318 0.01
C403 35V 0.33
C402 35V 0.47
C606 50V 2.2
C605 0.01
C607 9p
C614 0.1
C616 0.01
L601 82
C615 33p
C601 0.01
C304 50V 1
C305 0.01
C316 25V 4.7
C320 0.01
C314 10V 100
C317 25V 4.7
C301 25V 47
C306 16V 22
C312 16V 10
C311 0.01
C302 50V 1
C315
C501 1800p
C602 0.01
C3322 0.012
TPY157 TPY161 TPY154 TPY136 TPY150 TPY155 TPY158
TPY138 TPY134 TPY145 TPY151 TPY153 TPY160 TPY162 TPY156 TPY146 TPY135 TPY139 TPY129
TPY148
TP161 TP162 TP171 TP306 TP164 TP51 TP47 TP165 TP166
TP131 TP110 TP109 TP108 TP111 TP305 TP103 TP102 TP101 TP107 TP106
①②④⑤⑩


5V
IC501
SN74LS74ANS
14 13 12 11 10 9 8
1 2 3 4 5 6 7
CLR
CLK
D
PR
Q
2
R1716
4.7k
Q1704
MSB709T1
R1717
560
Q1703
MSB709T1
1
R1718
18k
1x
R1719
12k
C1791
50V
10
R1720
3.3k
R1721
560
Q1705
MSD601T1
R1722
1k
9V
R1726
22k
R063
3.3k
R070
3.3k
R071
3.3k
R611
330
R609
330
R607
330
R406 220
R405
1k
D023
MA3110
R012
100
R536
820
R507
100

AG–Board Voltage Measurements

IC301			
01	0.00	27	0.00
02	2.10	28	2.90
03	1.90	29	2.90
04	0.00	30	2.30
05	5.70	31	2.60
06	1.20	32	4.90
07	6.20	33	4.90
08	4.90	34	3.50
09	0.00	35	2.90
10	4.90	36	2.10
11	2.00	37	5.20
12	1.20	38	2.20
13	0.40	39	0.40
14	2.20	40	3.10
15	1.20	41	2.40
16	8.60	42	3.00
17	2.60	43	3.40
18	2.70	44	2.90
19	2.60	45	2.10
20	2.90	46	2.20
21	0.10	47	5.50
22	2.70	48	0.50
23	2.60	49	0.80
24	2.50	50	0.20
25	3.80	51	4.30
26	3.80	52	4.20

IC501	
01	5.20
02	1.20
03	3.10
04	5.20
05	2.40
06	2.20
07	0.00
08	4.80
09	0.10
10	5.20
11	5.20
12	5.20
13	5.20
14	5.20

IC3302			
01	0.00	23	0.00
02	9.00	24	6.10
03	0.00	25	0.00
04	0.00	26	7.20
05	0.00	27	4.00
06	0.00	28	0.00
07	9.00	29	2.30
08	0.00	30	0.00
09	0.00	31	0.00
10	0.00	32	9.00
11	0.00	33	0.00
12	0.00	34	0.00
13	4.80	35	9.00
14	3.70	36	0.00
15	0.00	37	9.00
16	0.00	38	9.00
17	0.00	39	0.00
18	3.90	40	0.00
19	3.20	41	0.00
20	4.80	42	3.10
21	9.00	43	2.10
22	0.00	44	2.10

IC6500	
01	2.10
02	2.40
03	2.40
04	0.00
05	2.40
06	2.90
07	3.60
08	8.90

IC6501			
01	9.00	19	0.00
02	2.40	20	0.00
03	0.00	21	2.80
04	0.00	22	0.00
05	3.00	23	2.90
06	2.90	24	0.00
07	3.50	25	3.20
08	5.00	26	2.20
09	9.00	27	0.00
10	0.00	28	3.00
11	4.40	29	2.00
12	9.00	30	0.00
13	3.80	31	9.00
14	0.00	32	2.80
15	3.10	33	0.00
16	0.00	34	2.10
17	3.10	35	0.00
18	0.00	36	5.00

IC6502	
01	3.30
02	3.30
03	3.30
04	0.00
05	3.30
06	3.30
07	3.30
08	8.90

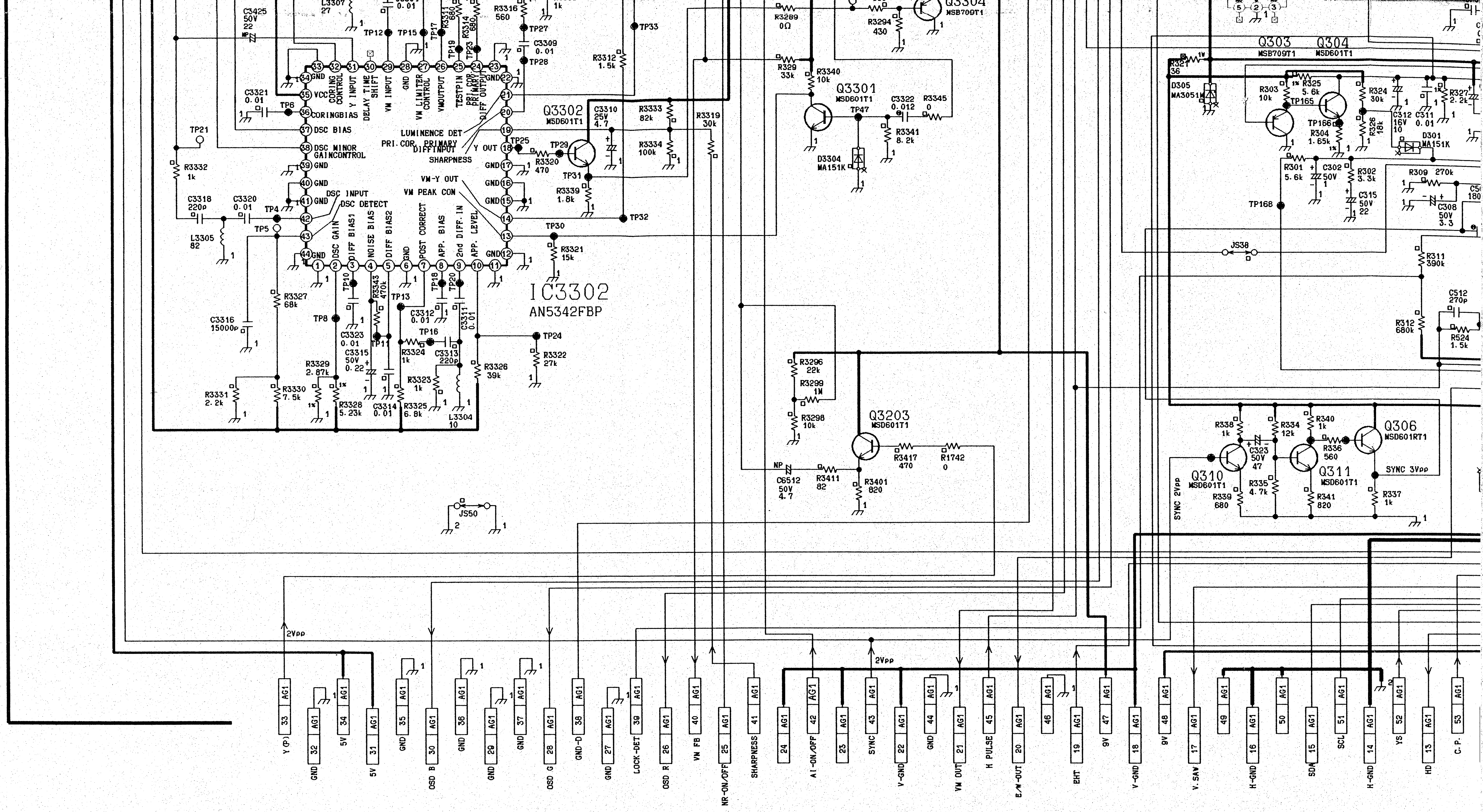
IC6503	
01	0.00
02	2.40
03	2.40
04	2.40
05	0.00
06	0.00
07	0.00
08	1.80
09	1.90
10	1.90
11	1.90
12	1.80
13	7.60
14	8.90

A14			
01	0.00	33	5.00
02	2.60	34	4.90
03	0.00	35	0.00
04	2.60	36	0.00
05	0.00	37	0.00
06	0.00	38	0.00
07	0.00	39	3.40

3

4

5

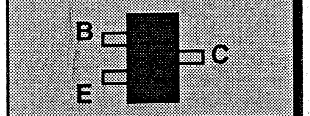

IC3302
AN5342FBP
Q3302
MSD601T1
Q3301
MSD601T1
Q3203
MSD601T1
Q3304
MSB709T1
Q303
MSB709T1
Q304
MSD601T1
Q306
MSD601RT1
Q310
MSD601T1
Q311
MSD601T1
D3304
MA151K
D305
MA3051M
D301
MA151K
VCC
CORING CONTROL
Y INPUT
DELAY TIME SHIFT
VM INPUT
GND
VM LIMITER CONTROL
VMOUTPUT
TESTPIN
PRI.COR. PRIMARY DIFF OUTPUT
CORINGBIAS
DSC BIAS
DSC MINOR GAINCONTROL
DSC INPUT
DSC DETECT
LUMINENCE DET
PRI.COR. PRIMARY DIFFINPUT
Y OUT
SHARPNESS
VM-Y OUT
VM PEAK CON
DSC GAIN
DIFF BIAS1
NOISE BIAS
DIFF BIAS2
POST CORRECT
APP. BIAS
2nd DIFF. IN
APP. LEVEL
JS50
JS38
SYNC 2Vpp
SYNC 3Vpp
2Vpp
Y (P)
GND
5V
OSD B
OSD G
GND-D
LOCK-DET
OSD R
VM FB
NR-ON/OFF
SHARPNESS
AI-ON/OFF
SYNC
V-GND
VM OUT
H PULSE
E/W-OUT
EHT
9V
V.SAW
H-GND
SDA
SCL
VS
HD
C.P.
AG1

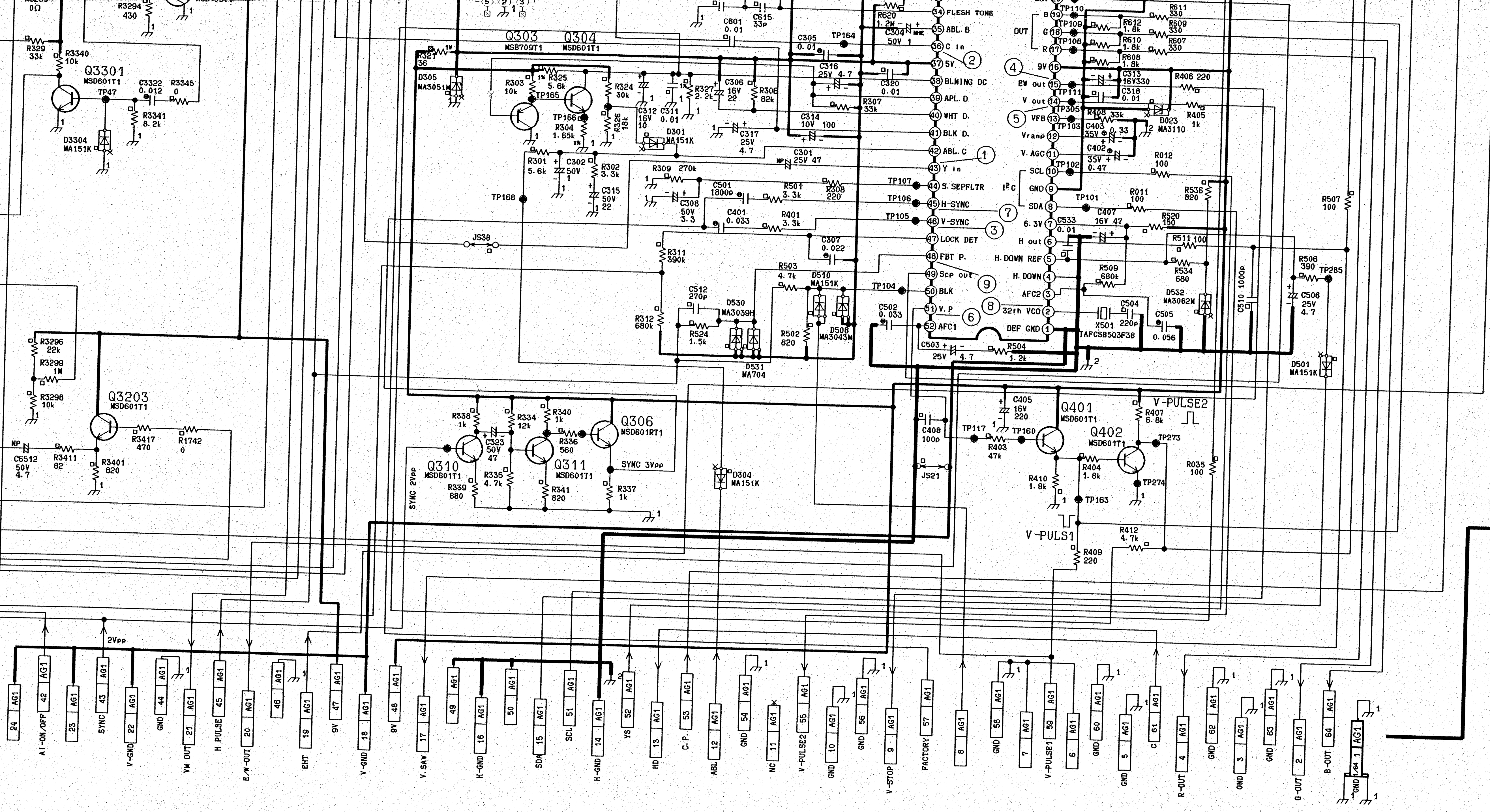
AG–Board Transistors

	B	C	E
Q1703	0.80	0.00	1.30
Q1704	0.00	0.10	1.30
Q1705	0.10	9.00	0.10
Q303	0.00	1.00	0.00
Q304	1.00	2.20	0.50
Q306	6.40	9.00	1.80
Q310	1.80	9.00	1.80
Q311	2.40	6.40	1.80
Q3203	5.10	8.90	4.40
Q3301	0.00	4.80	0.00
Q3302	3.90	8.90	3.30
Q3304	1.70	0.00	2.40
Q3311	0.00	8.90	2.00
Q3312	2.00	0.00	2.60
Q3313	0.60	0.00	0.00

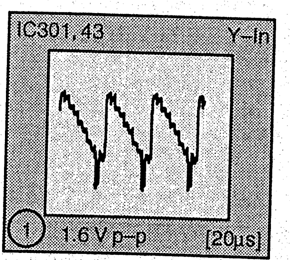
	B	C	E
Q3314	0.10	0.00	0.10
Q401	3.70	8.60	3.10
Q402	0.70	0.10	0.00
Q6500	2.40	0.00	3.10
Q6501	4.40	8.90	3.80
Q6502	0.00	2.90	0.00
Q6503	0.00	0.00	0.00
Q6504	2.90	0.00	3.50
Q6505	3.60	0.00	3.00
Q6506	2.10	0.00	2.70
Q6507	2.70	2.20	2.10
Q6508	2.10	0.00	2.80
Q6509	2.20	0.00	2.70
Q6510	2.70	8.90	2.20
Q6511	2.20	0.00	2.80

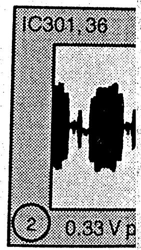
CHIP TRANSISTOR LEAD DESIGNATION

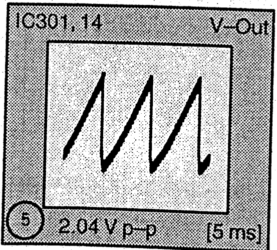


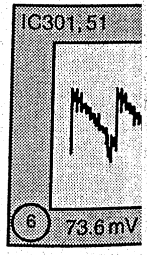

Q303 MSB709T1
Q304 MSD601T1
Q3301 MSD601T1
Q3203 MSD601T1
Q310 MSD601T1
Q311 MSD601T1
Q306 MSD601RT1
Q401 MSD601T1
Q402 MSD601T1
34 FLESH TONE
35 ABL. B
36 C In
37 5V
38 BLMING DC
39 APL. D
40 WHT D.
41 BLK D.
42 ABL. C
43 Y In
44 S. SEPFLTR
45 H-SYNC
46 V-SYNC
47 LOCK DET
48 FBT P.
49 Scp out
50 BLK
51 V. P
52 AFC1
B 19
G 18
R 17
OUT
9V 16
EW out 15
V out 14
VFB 13
Vramp 12
V. AGC 11
SCL 10
I²C
GND 9
SDA 8
6.3V 7
H out 6
H. DOWN REF 5
H. DOWN 4
AFC2 3
32fh VCO 2
DEF GND 1
X501 TAFCSB503F38
SYNC 2Vpp
SYNC 3Vpp
V-PULSE2
V-PULS1
2Vpp
24 AI-ON/OFF
42
23
43 SYNC
22 V-GND
44 GND
21 VM OUT
45 H PULSE
20 E/W-OUT
46
19 EHT
47 9V
18 V-GND
48 9V
17 V.SAW
49
16 H-GND
50
15 SDA
51 SCL
14 H-GND
52 YS
13 HD
53 C.P.
12 ABL
54 GND
11 NC
55 V-PULSE2
10 GND
56 GND
9 V-STOP
57 FACTORY
8
58 GND
7
59 V-PULSE1
6
60 GND
5 GND
61 C
4 R-OUT
62 GND
3 GND
63 GND
2 G-OUT
64 B-OUT
1 GND
AG1

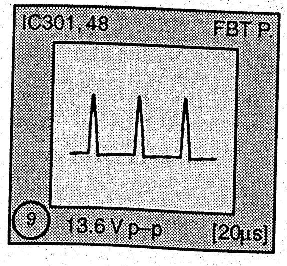
A

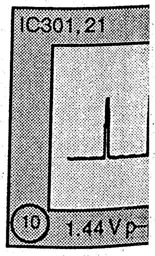








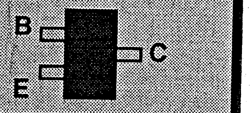




stors

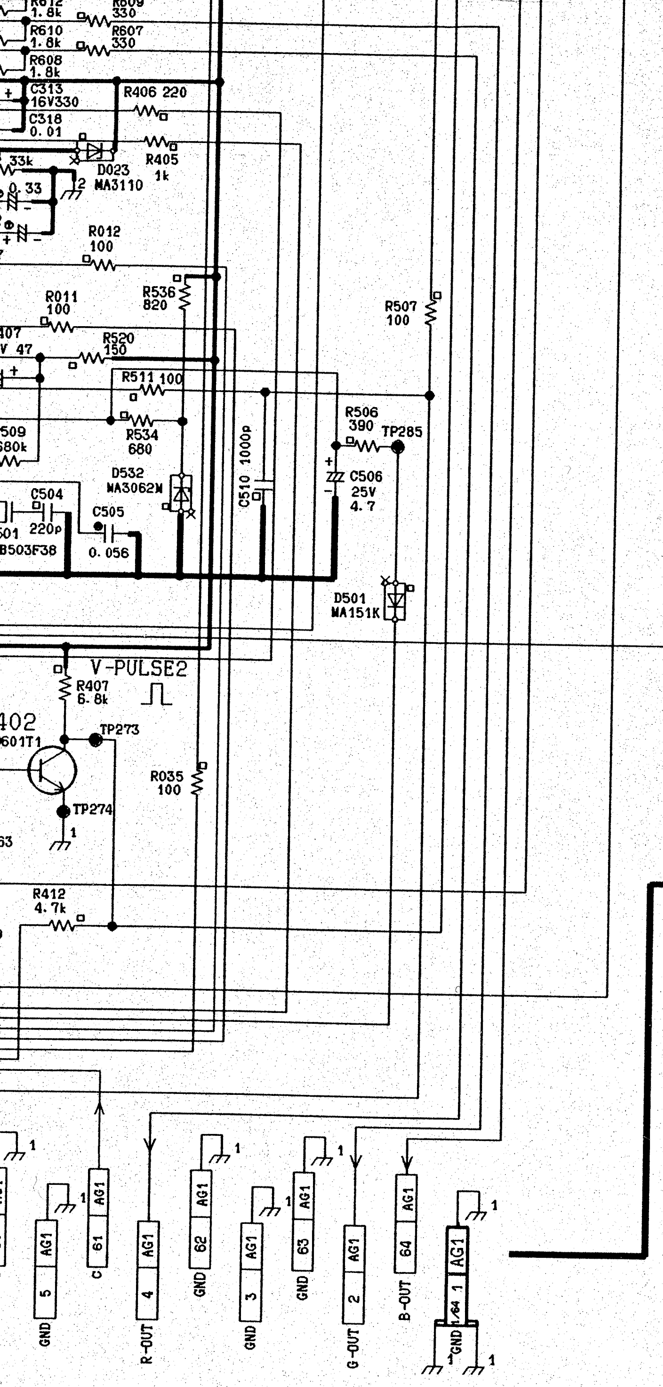
B	C	E
0.10	0.00	0.10
3.70	8.60	3.10
0.70	0.10	0.00
2.40	0.00	3.10
4.40	8.90	3.80
0.00	2.90	0.00
0.00	0.00	0.00
2.90	0.00	3.50
3.60	0.00	3.00
2.10	0.00	2.70
2.70	2.20	2.10
2.10	0.00	2.80
2.20	0.00	2.70
2.70	8.90	2.20
2.20	0.00	2.80

CHIP TRANSISTOR LEAD DESIGNATION



IMPORTANT SAFETY NOTICE

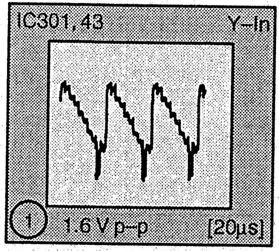
THIS SCHEMATIC DIAGRAM INCORPORATES SPECIAL FEATURES THAT ARE IMPORTANT FOR PROTECTION FROM X-RADIATION, FIRE AND ELECTRICAL SHOCK HAZARDS. WHEN SERVICING IT IS ESSENTIAL THAT ONLY MANUFACTURERS SPECIFIED PARTS BE USED FOR THE CRITICAL COMPONENTS DESIGNATED WITH A ⚠ IN THE SCHEMATIC.

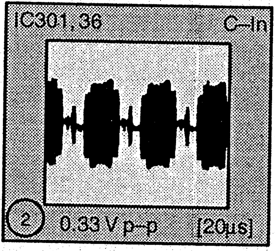

R612 1.8k
R609 330
R610 1.8k
R607 330
R608 1.8k
C313 16V330
R406 220
C318 0.01
D023 MA3110
R405 1k
R012 100
R011 100
R536 820
R507 100
R520 150
R511 100
R506 390
TP285
R534 680
C510 1000p
D532 MA3062M
C506 25V 4.7
C504
C505 0.056
220p
B503F38
D501 MA151K
V-PULSE2
R407 6.8k
TP273
R035 100
TP274
R412 4.7k
AG1
GND
R-OUT
G-OUT
B-OUT

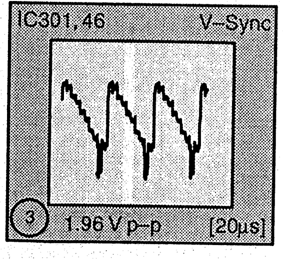
18 ..	0.00	36 ..	5.00

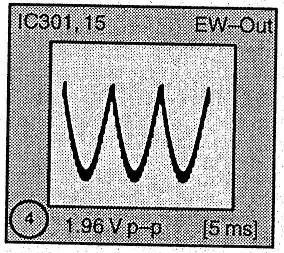
A14			
01. .	0.00	33 ..	5.00
02 ..	2.60	34 ..	4.90
03 ..	0.00	35 ..	0.00
04 ..	2.60	36 ..	0.00
05 ..	0.00	37 ..	0.00
06 ..	0.00	38 ..	0.00
07 ..	0.00	39 ..	3.40
08 ..	0.20	40 ..	4.40
09 ..	5.70	41 ..	2.20
10 ..	0.00	42 ..	0.00
11 ..	0.00	43 ..	2.20
12 ..	2.50	44 ..	0.00
13 ..	1.00	45 ..	1.10
14 ..	0.00	46 ..	0.00
15 ..	4.90	47 ..	8.90
16 ..	0.00	48 ..	8.60
17 ..	2.20	49 ..	0.00
18 ..	0.00	50 ..	0.00
19 ..	2.90	51 ..	4.90
20 ..	3.50	52 ..	0.10
21 ..	7.20	53 ..	2.10
22 ..	0.00	54 ..	0.00
23 ..	0.00	55 ..	0.00
24 ..	0.00	56 ..	0.00
25 ..	5.20	57 ..	2.20
26 ..	0.70	58 ..	0.00
27 ..	0.00	59 ..	3.20
28 ..	0.60	60 ..	0.00
29 ..	0.00	61 ..	0.00
30 ..	0.60	62 ..	0.00
31 ..	4.90	63 ..	0.00
32 ..	0.00	64 ..	2.60

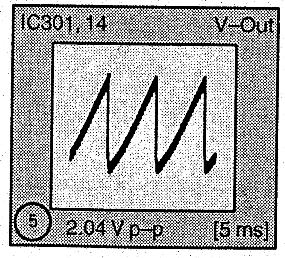
AG-Board Waveforms

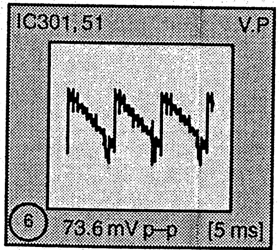


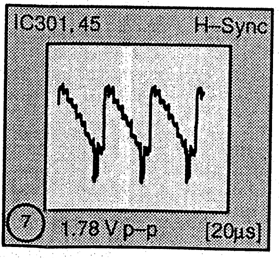


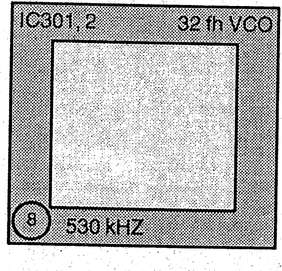


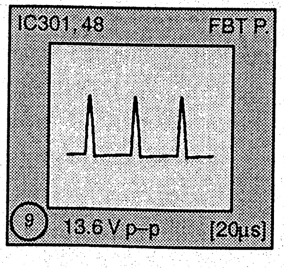


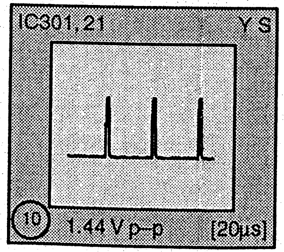












FETY NOTICE
INCORPORATES SPECIAL
T FOR PROTECTION FROM
TRICAL SHOCK HAZARDS.
ESSENTIAL THAT ONLY
ARTS BE USED FOR THE
NATED WITH A ⚠ IN THE

MTC9705703C1

All Models

PT-51G50U/CU/LU/PU/TU PT-51G52V/CV/LV/PV/TV/XV PT-61G52V/CV

D1–Board Voltage Measurements

IC2511

01	4.50	22	4.60
02	4.40	23	4.60
03	4.40	24	4.60
04	4.40	25	5.10
05	4.40	26	4.40
06	4.40	27	5.20
07	4.40	28	4.40
08	4.40	29	4.40
09	4.40	30	4.40
10	4.40	31	4.40
11	0.00	32	4.40
12	4.40	33	4.40
13	4.40	34	4.40
14	4.40	35	4.40
15	4.40	36	4.40
16	5.10	37	4.40
17	4.40	38	8.80
18	5.10	39	0.10
19	4.40	40	5.20
20	4.40	41	5.20
21	4.40	42	5.20

IC2512

01	0.00	13	4.40
02	5.20	14	4.40
03	5.20	15	4.40
04	5.10	16	4.40
05	2.70	17	0.00
06	0.70	18	4.40
07	8.80	19	0.00
08	4.40	20	4.40
09	4.40	21	4.40
10	4.40	22	4.60
11	4.40	23	2.20
12	4.40	24	2.30

IC2513

01	4.40
02	1.50
03	4.40
04	8.90
05	4.40
06	0.00
07	2.80
08	4.50
09	1.80
10	4.40

IC2514

01	4.40	11	5.10
02	4.40	12	5.10
03	4.30	13	0.00
04	4.40	14	4.40
05	4.40	15	4.40
06	4.40	16	4.40
07	4.40	17	4.40
08	0.00	18	4.40
09	4.90	19	4.40
10	4.90	20	8.90

IC2515

01	4.40	11	5.10
02	4.40	12	5.10
03	4.40	13	0.00
04	4.40	14	4.40
05	4.40	15	4.40
06	4.40	16	4.40
07	4.40	17	4.40
08	0.00	18	4.40
09	4.80	19	4.40
10	5.00	20	8.90

IC2517

01	4.40
02	4.40
03	4.40
04	4.40
05	0.00
06	0.00
07	0.00
08	4.40
09	4.40
10	4.40
11	4.40
12	7.20
13	7.20
14	8.90

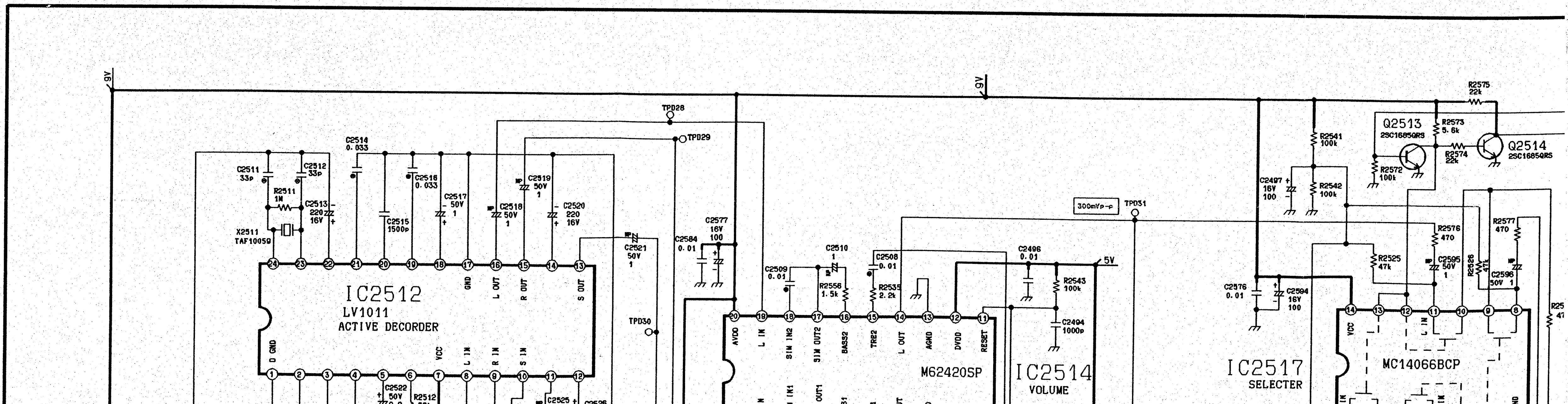
IC2518

01	5.10
02	5.10
03	5.10
04	1.40
05	1.40
06	2.80
07	0.00
08	0.00
09	0.00
10	0.00
11	0.00
12	0.00
13	0.00
14	5.00
15	4.90
16	5.10

D1–Board Transistors

	B	C	E
Q2513	0.00	7.20	0.00
Q2514	0.60	0.00	0.00

D1–Board Schematic
All Models


9V
TPD28
TPD29
C2514 0.033
C2511 33p
C2512 33p
R2511 1M
C2513 220 16V
X2511 TAF1005Q
C2515 1500p
C2516 0.033
C2517 50V 1
C2518 50V 1
C2519 50V 1
C2520 220 16V
C2521 50V 1
C2584 0.01
C2577 16V 100
IC2512
LV1011
ACTIVE DECORDER
D GND
VCC
GND
L OUT
R OUT
S OUT
L IN
R IN
S IN
TPD30
C2509 0.01
C2510 1
R2556 1.5k
C2508 0.01
R2535 2.2k
AVDD
L IN
SIN IN2
SIN OUT2
BASS2
TRE2
L OUT
AGND
DVDD
RESET
M62420SP
C2496 0.01
R2543 100k
C2494 1000p
5V
IC2514
VOLUME
300mVp-p
TPD31
C2497 16V 100
R2541 100k
R2542 100k
Q2513 2SC1685QRS
R2573 5.6k
R2575 22k
R2572 100k
R2574 22k
Q2514 2SC1685QRS
R2576 470
R2577 470
R2525 47k
C2595 50V 1
C2596 50V 1
C2576 0.01
C2594 16V 100
IC2517
SELECTER
MC14066BCP
VCC

e Measurements

512	
13 ..	4.40
14 ..	4.40
15 ..	4.40
16 ..	4.40
17 ..	0.00
18 ..	4.40
19 ..	0.00
20 ..	4.40
21 ..	4.40
22 ..	4.60
23 ..	2.20
24 ..	2.30

IC2513	
01 ..	4.40
02 ..	1.50
03 ..	4.40
04 ..	8.90
05 ..	4.40
06 ..	0.00
07 ..	2.80
08 ..	4.50
09 ..	1.80
10 ..	4.40

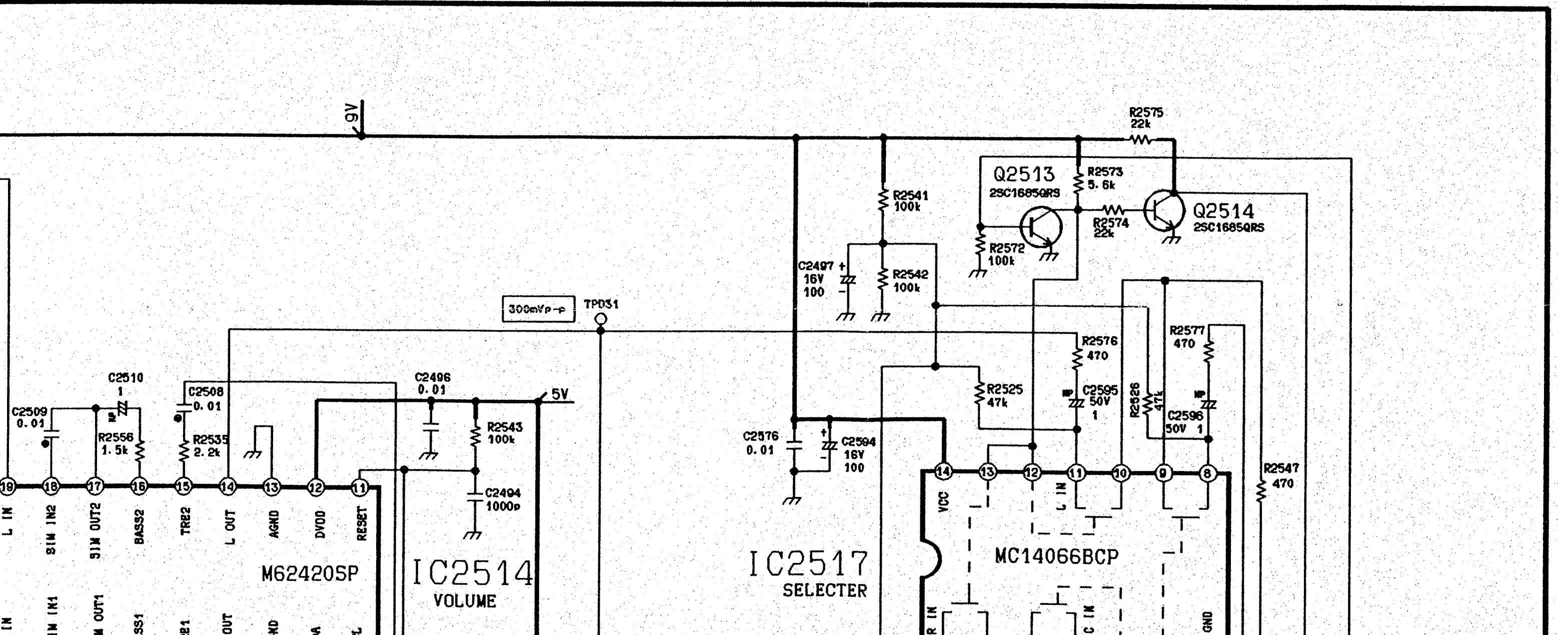
IC2514			
01. .	4.40	11 ..	5.10
02 ..	4.40	12 ..	5.10
03 ..	4.30	13 ..	0.00
04 ..	4.40	14 ..	4.40
05 ..	4.40	15 ..	4.40
06 ..	4.40	16 ..	4.40
07 ..	4.40	17 ..	4.40
08 ..	0.00	18 ..	4.40
09 ..	4.90	19 ..	4.40
10 ..	4.90	20 ..	8.90

15	
11 ..	5.10
12 ..	5.10
13 ..	0.00
14 ..	4.40
15 ..	4.40
16 ..	4.40
17 ..	4.40
18 ..	4.40
19 ..	4.40
20 ..	8.90

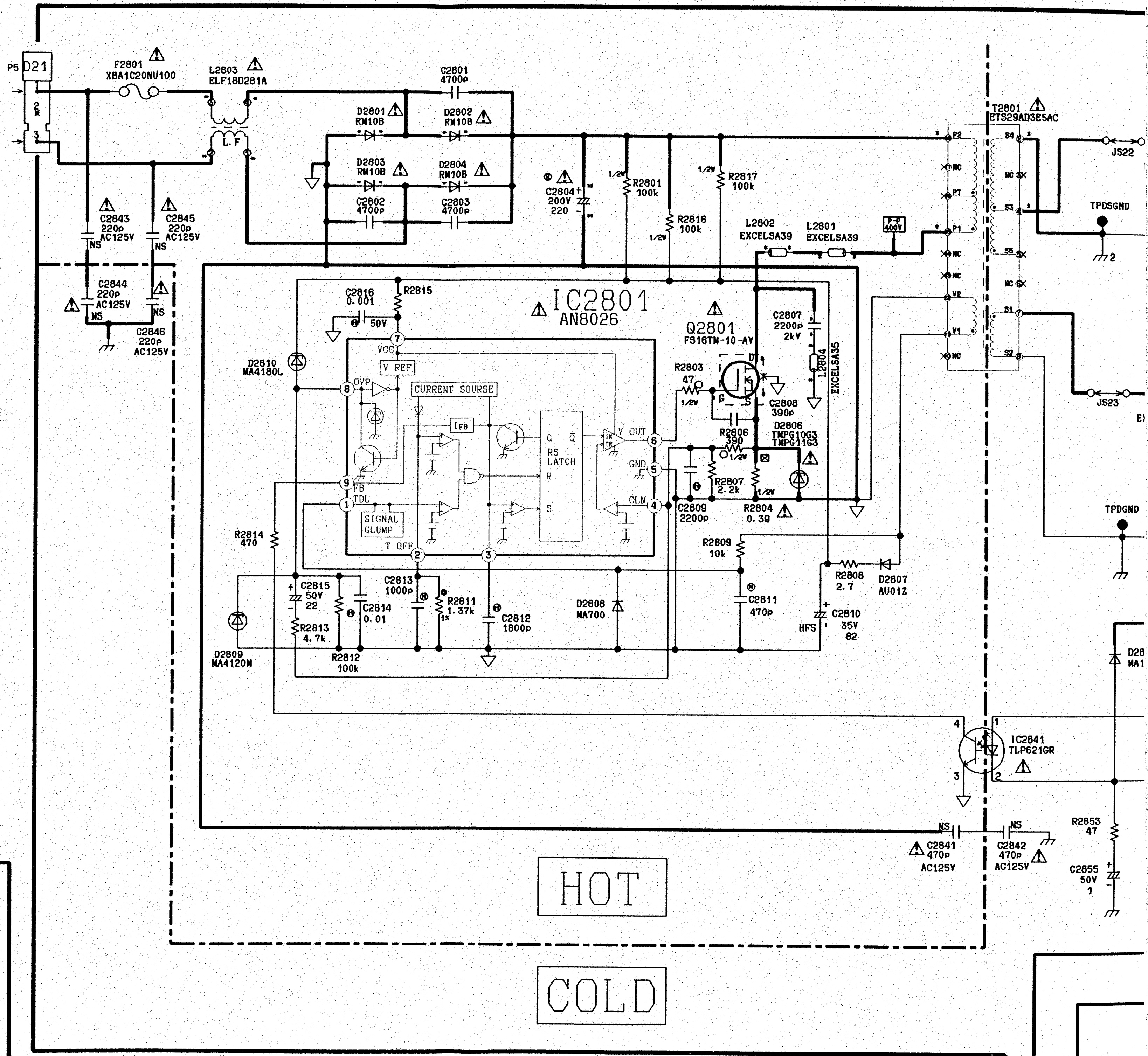
IC2517	
01 ..	4.40
02 ..	4.40
03 ..	4.40
04 ..	4.40
05 ..	0.00
06 ..	0.00
07 ..	0.00
08 ..	4.40
09 ..	4.40
10 ..	4.40
11 ..	4.40
12 ..	7.20
13 ..	7.20
14 ..	8.90

IC2518	
01 ..	5.10
02 ..	5.10
03 ..	5.10
04 ..	1.40
05 ..	1.40
06 ..	2.80
07 ..	0.00
08 ..	0.00
09 ..	0.00
10 ..	0.00
11 ..	0.00
12 ..	0.00
13 ..	0.00
14 ..	5.00
15 ..	4.90
16 ..	5.10

1–Board Schematic
All Models

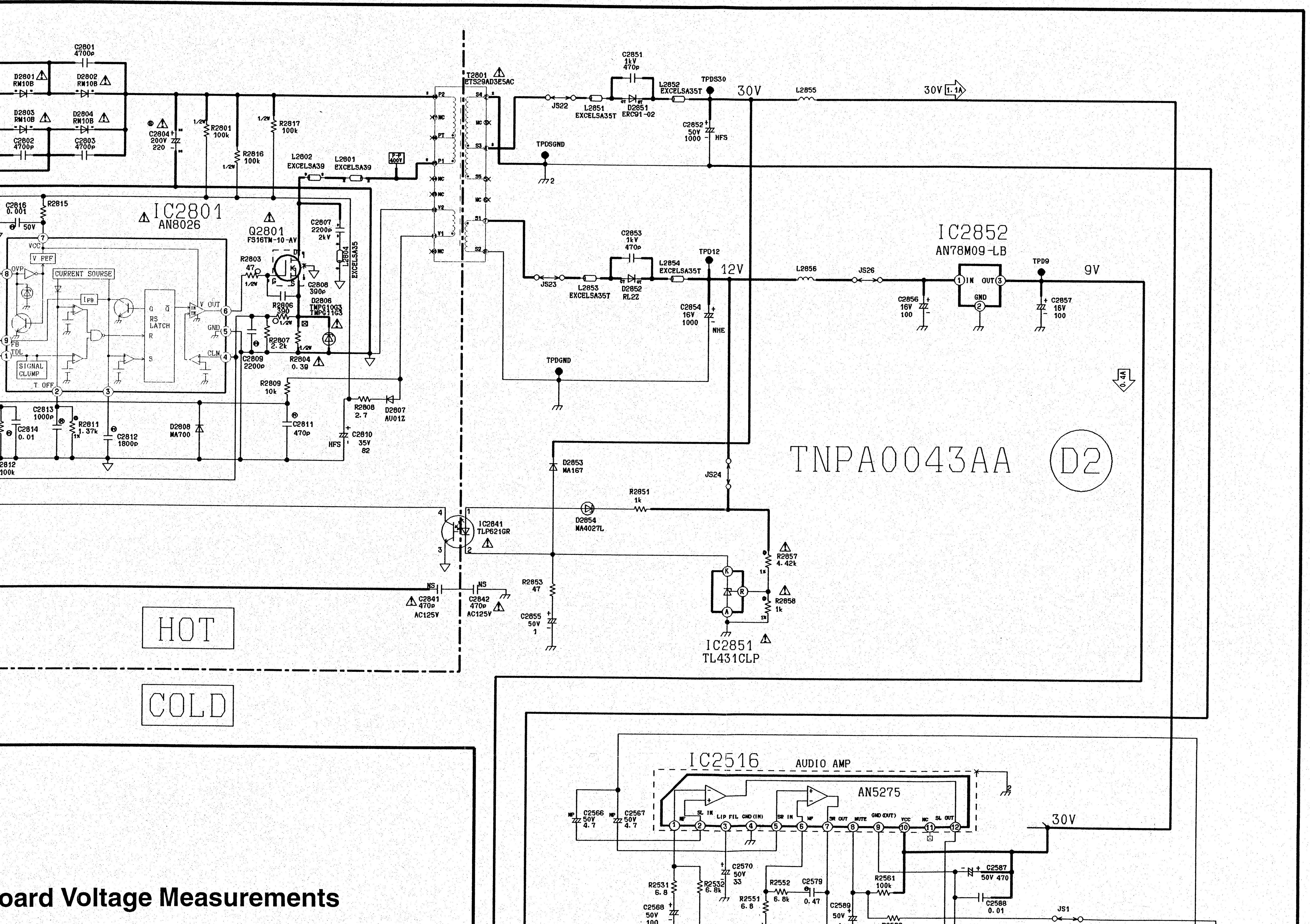

9V
R2575 22k
Q2513 2SC1685QRS
R2573 5.6k
Q2514 2SC1685QRS
R2574 22k
R2541 100k
R2572 100k
C2497 16V 100
R2542 100k
300mVp-p
TP031
R2576 470
R2577 470
R2525 47k
C2595 50V 1
R2526
C2596 50V 1
R2547 470
C2510 1
C2508 0.01
C2509 0.01
R2556 1.5k
R2535 2.2k
C2496 0.01
5V
R2543 100k
C2494 1000p
C2576 0.01
C2594 16V 100
L IN
SIN IN2
SIN OUT2
BASS2
TRE2
L OUT
AGND
DVDD
RESET
M62420SP
IC2514
VOLUME
IC2517
SELECTER
MC14066BCP
VCC
GND

D2–Board Sch
All Mode


P5 D21
F2801 XBA1C20NU100
L2803 ELF18D281A
L.F
C2801 4700p
D2801 RM10B
D2802 RM10B
D2803 RM10B
D2804 RM10B
C2802 4700p
C2803 4700p
C2804 200V 220
R2801 100k
R2817 100k
R2816 100k
1/2W
L2802 EXCELSA39
L2801 EXCELSA39
T2801 ETS29AD3E5AC
J522
TPDSGND
C2843 220p AC125V NS
C2845 220p AC125V NS
C2844 220p AC125V NS
C2846 220p AC125V NS
IC2801 AN8026
Q2801 FS16TM-10-AV
C2816 0.001 50V
R2815
D2810 MA4180L
VCC
V REF
OVP
CURRENT SOURSE
IFB
RS LATCH
V OUT
GND
CLM
FB
TDL
SIGNAL CLUMP
T OFF
R2803 47
C2807 2200p 2kV
EXCELSA35
C2808 390p
D2806 TMPG10G3 TMPG11G3
R2806 390
R2807 2.2k
R2804 0.39
C2809 2200p
R2809 10k
R2814 470
R2808 2.7
D2807 AU01Z
C2815 50V 22
C2813 1000p
R2811 1.37k
C2814 0.01
C2812 1800p
D2808 MA700
C2811 470p
C2810 35V 82
HFS
R2813 4.7k
R2812 100k
D2809 MA4120M
IC2841 TLP621GR
C2841 470p AC125V
C2842 470p AC125V
R2853 47
C2855 50V 1
J523
TPDGND
HOT
COLD

D2–Board Voltage Measurements

D2–Board Schematic
All Models


C2801 4700p
D2801 RM10B
D2802 RM10B
D2803 RM10B
D2804 RM10B
C2802 4700p
C2803 4700p
C2804 200V 220
R2801 100k
R2816 100k
R2817 100k
L2802 EXCELSA39
L2801 EXCELSA39
T2801 ETS29AD3E5AC
C2816 0.001 50V
R2815
IC2801 AN8026
Q2801 FS16TM-10-AV
V REF
CURRENT SOURSE
OVP
VCC
FB
TDL
SIGNAL CLUMP
T OFF
RS LATCH
V OUT
GND
CLM
R2803 47
C2807 2200p 2kV
L2804
EXCELSA35
C2808 390p
D2806 TMPG10G3 TMPG11G3
R2806 390
R2807 2.2k
C2809 2200p
R2804 0.39
R2809 10k
C2811 470p
R2808 2.7
D2807 AU01Z
C2810 35V 82
HFS
C2813 1000p
C2814 0.01
R2811 1.37k
C2812 1800p
D2808 MA700
R2812 100k
C2851 1kV 470p
J522
L2851 EXCELSA35T
D2851 ERC91-02
L2852 EXCELSA35T
TPDS30
30V
L2855
30V 1.1A
C2852 50V 1000
TPDSGND
C2853 1kV 470p
J523
L2853 EXCELSA35T
D2852 RL2Z
L2854 EXCELSA35T
TPD12
12V
C2854 16V 1000
NHE
TPDGND
L2856
JS26
IC2852 AN78M09-LB
IN OUT GND
TPD9
9V
C2856 16V 100
C2857 16V 100
0.4A
TNPA0043AA
D2
D2853 MA167
JS24
R2851 1k
D2854 MA4027L
IC2841 TLP621GR
R2857 4.42k
R2858 1k
IC2851 TL431CLP
R2853 47
C2855 50V 1
C2841 470p AC125V
C2842 470p AC125V
HOT
COLD
IC2516 AUDIO AMP
AN5275
C2566 50V 4.7
C2567 50V 4.7
C2570 50V 33
R2531 6.8
R2532 6.8k
R2552 6.8k
R2551 6.8
C2579 0.47
R2561 100k
C2587 50V 470
C2588 0.01
C2568 50V 100
C2589 50V
JS1
30V

oard Voltage Measurements

3

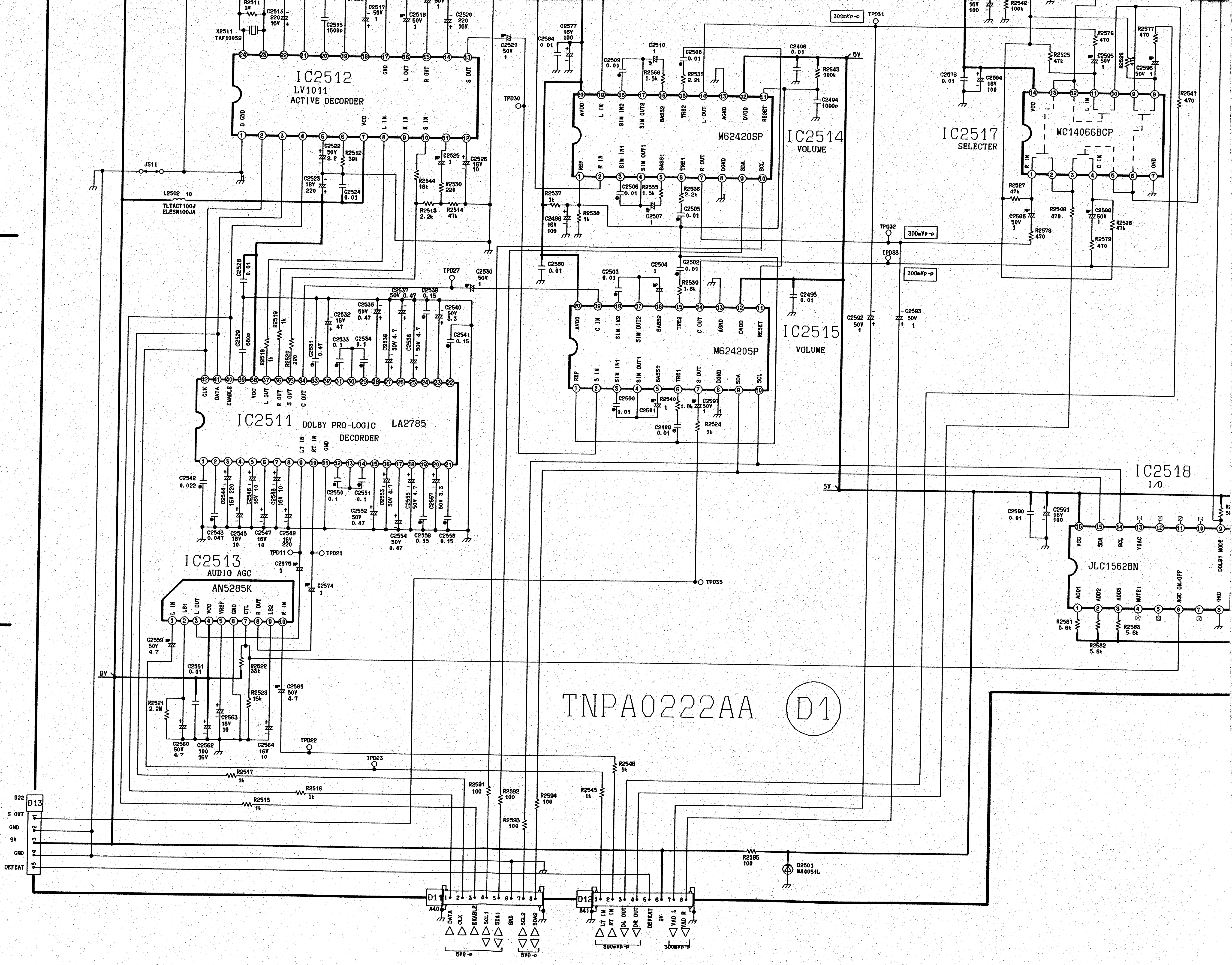
MTC9705703C1

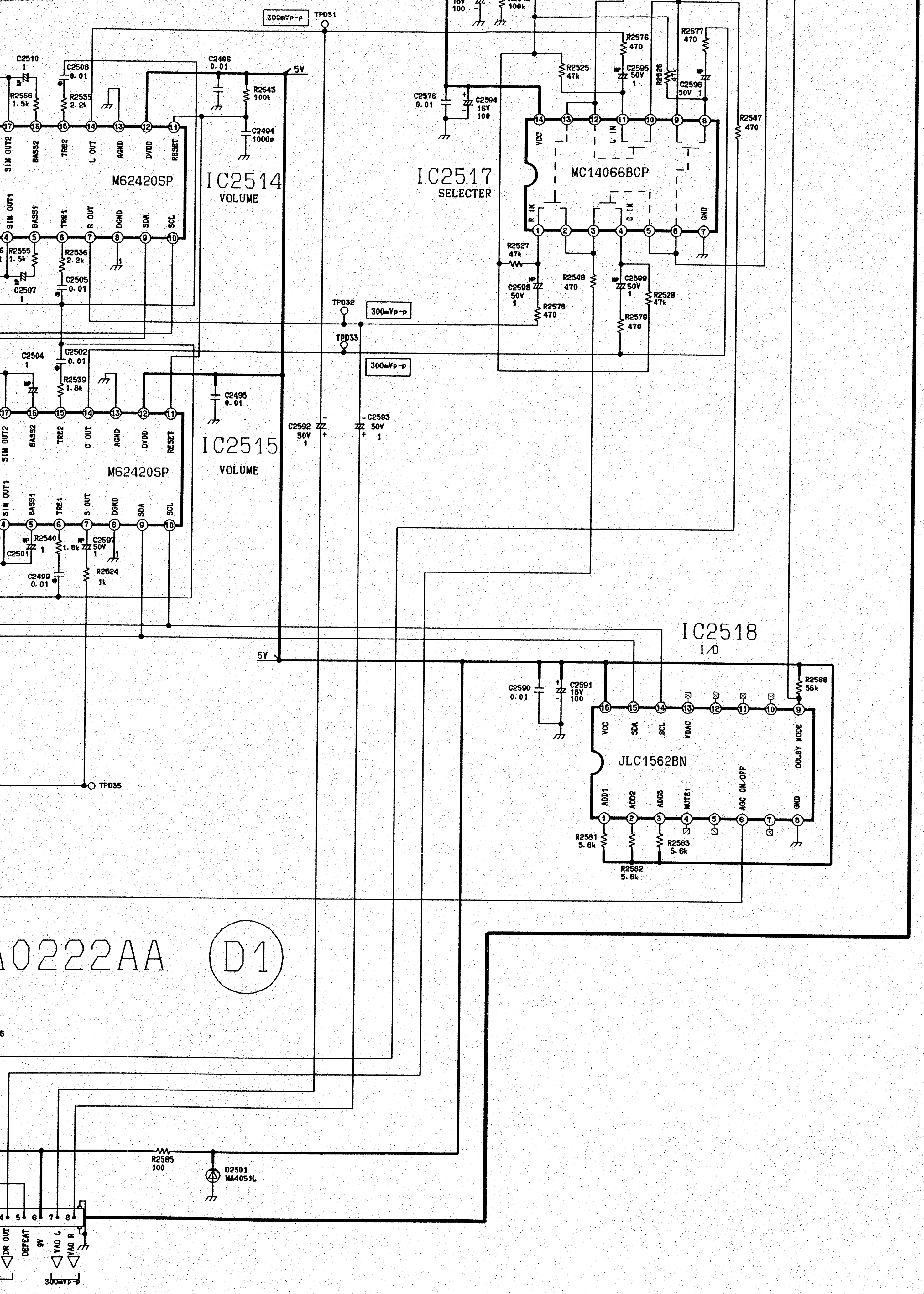
4

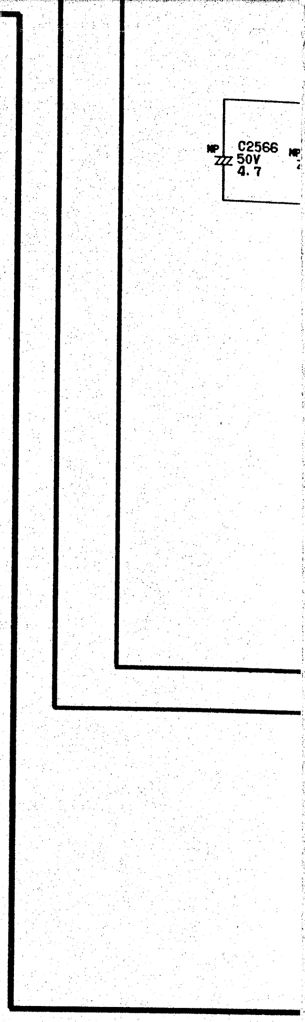
5

A4

PT-51G50U/CU/LU/PU/TU PT-51G52V/CV/LV/PV/TV/XV PT-61G52V/CV


IC2512
LV1011
ACTIVE DECORDER
X2511
TAF10059
JS11
L2502 10
TLTACT100J
ELESN100JA
IC2514
VOLUME
M62420SP
IC2515
VOLUME
M62420SP
IC2517
SELECTER
MC14066BCP
IC2518
I/O
JLC1562BN
IC2511
DOLBY PRO-LOGIC
DECORDER
LA2785
IC2513
AUDIO AGC
AN5285K
TPD11
TPD21
TPD22
TPD23
TPD27
TPD30
TPD31
TPD32
TPD33
TPD35
300mVp-p
5V
9V
TNPA0222AA
D1
D13
D22
S OUT
GND
9V
GND
DEFEAT
D11
A40
DATA
CLK
ENABLE2
SCL1
SDA1
GND
SCL2
SDA2
5Vp-p
D12
A41
LT IN
RT IN
DL OUT
DR OUT
DEFEAT
9V
VAO L
VAO R
300mVp-p
D2501
MA4051L
R2585
100


IC2514
VOLUME
M62420SP
IC2515
VOLUME
IC2517
SELECTER
MC14066BCP
IC2518
I/O
JLC1562BN
TPD31
TPD32
TPD33
TPD35
300mVp-p
5V
SIN OUT2
BASS2
TRE2
L OUT
C OUT
AGND
DVDD
RESET
SIN OUT1
BASS1
TRE1
R OUT
S OUT
DGND
SDA
SCL
VCC
L IN
R IN
C IN
GND
VDAC
DOLBY MODE
ADD1
ADD2
ADD3
MUTE1
AGC ON/OFF
R2588 56k
R2581 5.6k
R2582 5.6k
R2583 5.6k
C2590 0.01
C2591 16V 100
R2585 100
D2501 MA4051L
DR OUT
DEFEAT
9V
VAO L
VAO R
A0222AA
D1


C2566
50V
4.7

D2–Board Voltage Measurements

IC2516	
01	1.00
02	0.00
03	39.20
04	0.00
05	0.00
06	1.00
07	19.60
08	7.10
09	0.00
10	39.90
11	0.00
12	19.60

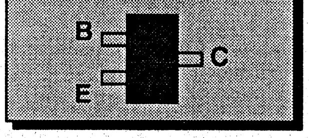
IC2801	
01	1.00
02	0.30
03	0.10
04	0.10
05	0.00
06	5.20
07	21.10
08	6.30
09	6.00

IC2841	
01	11.10
02	10.10
03	0.00
04	5.90

IC2851	
01 R	2.40
02 A	0.00
03 K	10.10

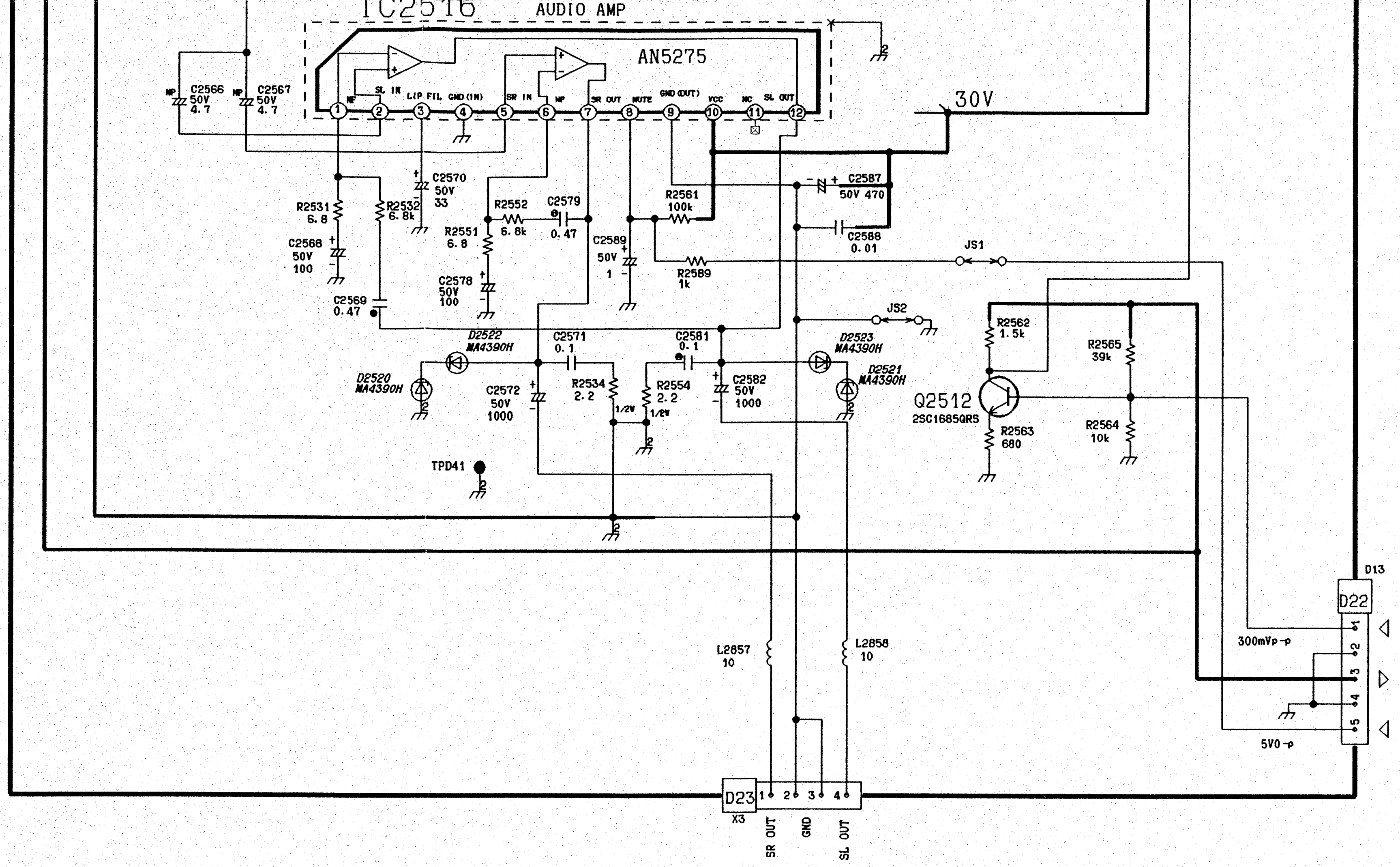
IC2852	
01	13.30
02	0.00
03	8.90

CHIP TRANSISTOR LEAD DESIGNATION



D2–Board Transistors

	B	C	E
Q2512	0.40	9.00	0.00
Q2801	0.00	124.30	5.20


IC2516
AUDIO AMP
AN5275
NF
SL IN
LIP FIL
GND (IN)
SR IN
NF
SR OUT
MUTE
GND (OUT)
VCC
NC
SL OUT
1
2
3
4
5
6
7
8
9
10
11
12
NP
C2566
50V
4.7
NP
C2567
50V
4.7
30V
C2570
50V
33
R2531
6.8
R2532
6.8k
C2568
50V
100
R2552
6.8k
C2579
0.47
R2551
6.8
C2578
50V
100
C2569
0.47
C2589
50V
1
R2561
100k
R2589
1k
C2587
50V 470
C2588
0.01
JS1
JS2
D2522
MA4390H
D2520
MA4390H
C2571
0.1
C2572
50V
1000
R2534
2.2
1/2W
R2554
2.2
1/2W
C2581
0.1
C2582
50V
1000
D2523
MA4390H
D2521
MA4390H
Q2512
2SC1685QRS
R2562
1.5k
R2565
39k
R2563
680
R2564
10k
TPD41
L2857
10
L2858
10
D13
D22
300mVp-p
5V0-p
1
2
3
4
5
D23
X3
1
2
3
4
SR OUT
GND
SL OUT

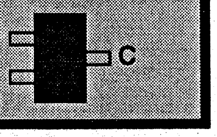
Voltage Measurements

IC2801	
01	1.00
02	0.30
03	0.10
04	0.10
05	0.00
06	5.20
07	21.10
08	6.30
09	6.00

IC2841	
01	11.10
02	10.10
03	0.00
04	5.90

IC2852	
01	13.30
02	0.00
03	8.90

CHIP TRANSISTOR LEAD DESIGNATION



rd Transistors

	C	E
.40	9.00	0.00
.00	124.30	5.20

IMPORTANT SAFETY NOTICE

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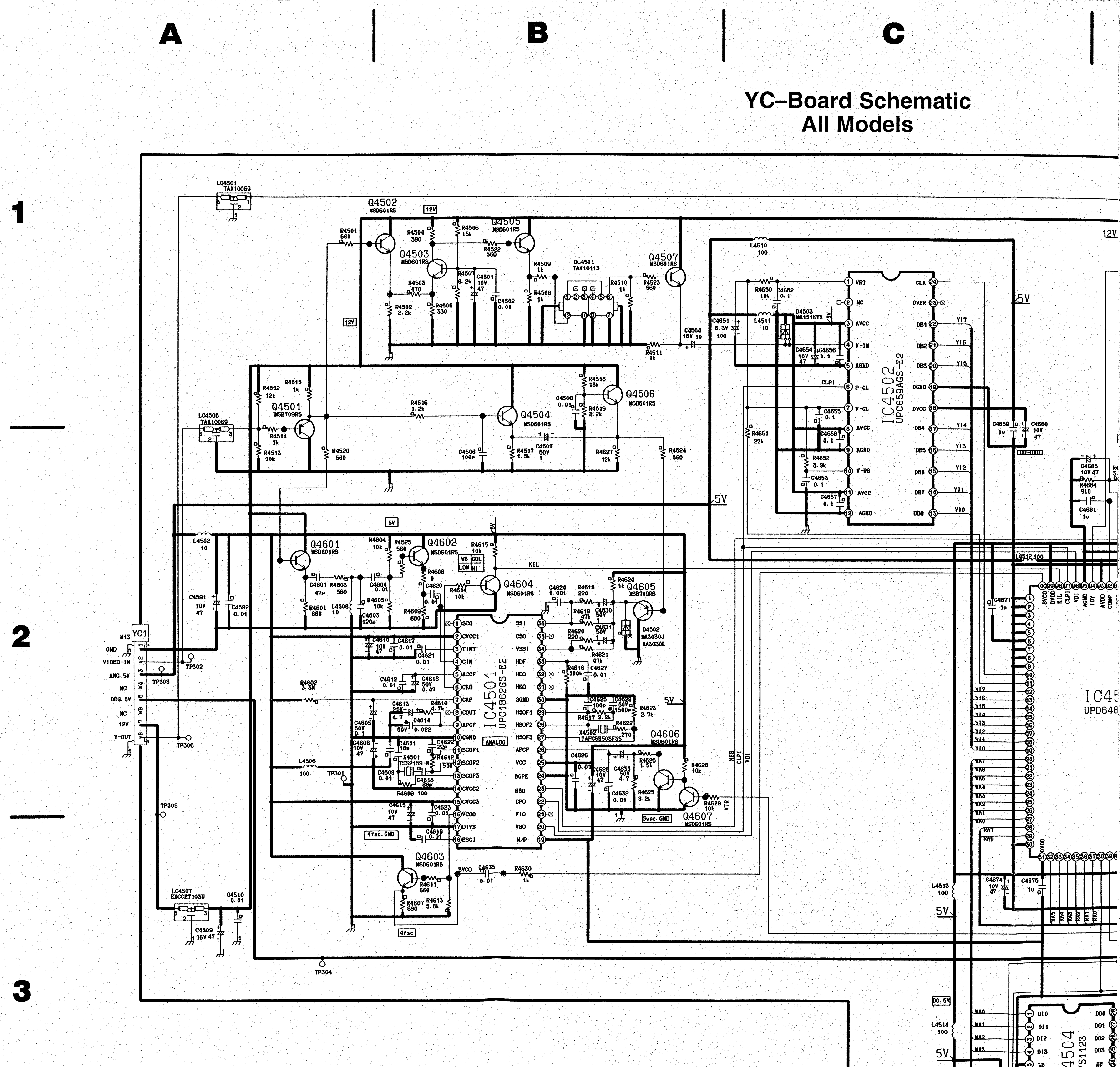
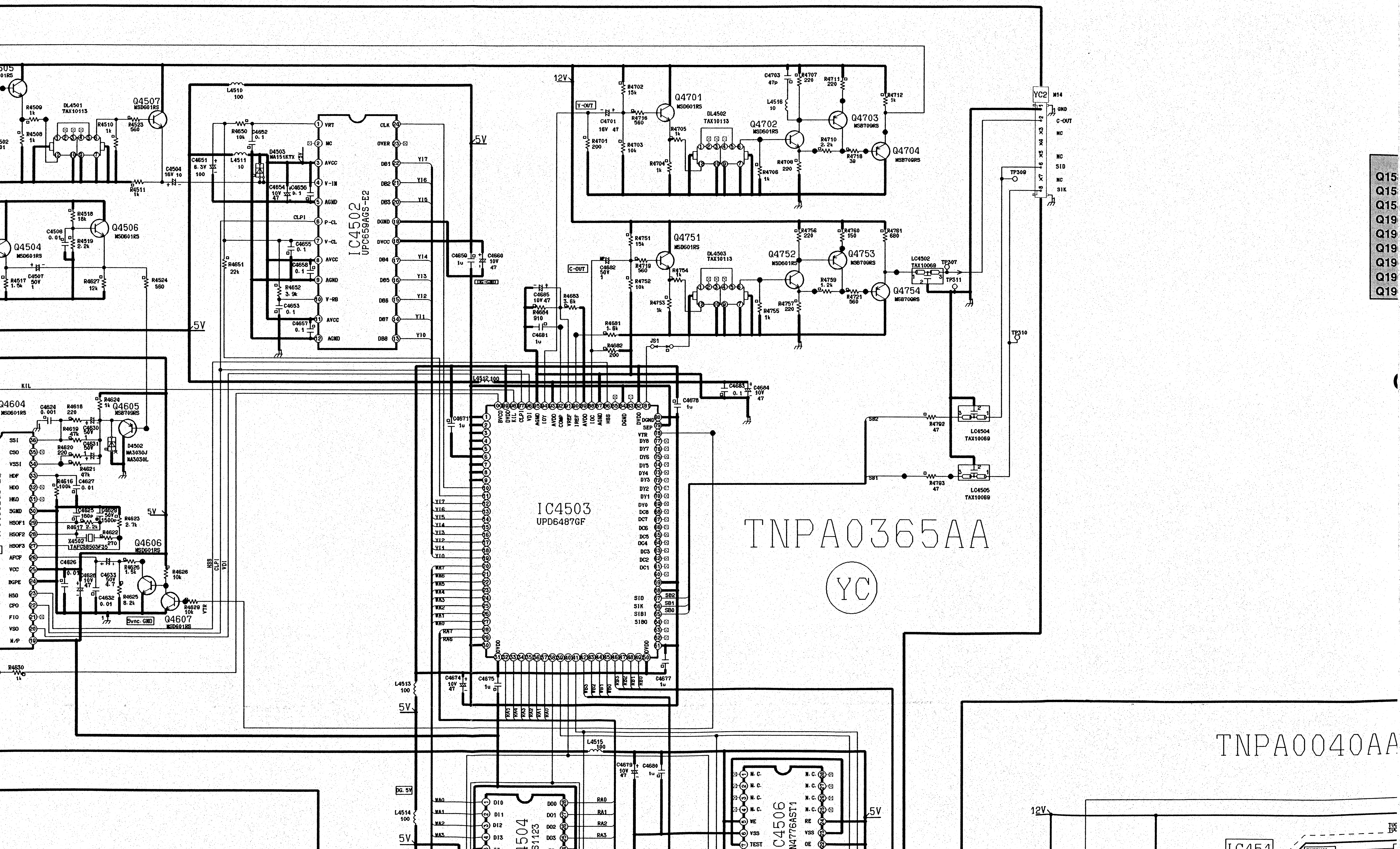
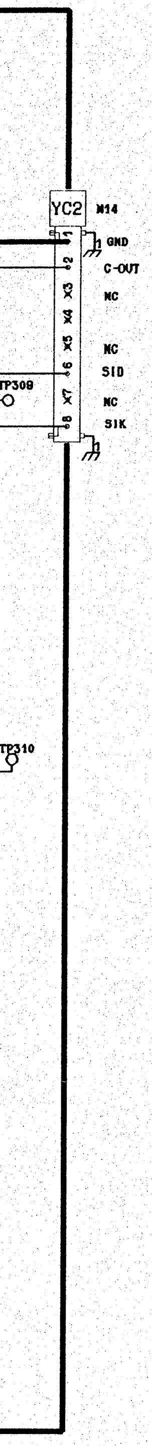
YC–Board Schematic
All Models


A
B
C
1
2
3
LC4501
TAX10069
Q4502
MSD601RS
12V
R4501
560
R4504
390
R4506
15k
Q4505
MSD601RS
Q4503
MSD601RS
R4522
560
R4503
470
R4507
8.2k
C4501
10V
47
R4509
1k
DL4501
TAX10113
R4510
1k
Q4507
MSD601RS
R4523
560
R4502
2.2k
R4505
330
C4502
0.01
R4508
1k
C4504
16V 10
R4511
1k
R4512
12k
R4515
1k
Q4501
MSB709RS
R4516
1.2k
Q4504
MSD601RS
R4518
18k
Q4506
MSD601RS
C4508
0.01
R4519
2.2k
LC4506
TAX10069
R4514
1k
R4513
10k
R4520
560
C4506
100p
R4517
1.5k
C4507
50V
1
R4627
12k
R4524
560
L4510
100
R4650
10k
C4652
0.1
D4503
MA151KTX
C4651
6.3V
100
L4511
10
C4654
10V
47
C4656
0.1
R4651
22k
C4655
0.1
C4658
0.1
R4652
3.9k
C4653
0.1
C4657
0.1
IC4502
UPC659AGS-E2
VRT
NC
AVCC
V-IN
AGND
P-CL
V-CL
AVCC
AGND
V-RB
AVCC
AGND
CLK
OVER
DB1
DB2
DB3
DGND
DVCC
DB4
DB5
DB6
DB7
DB8
CLPI
Y17
Y16
Y15
Y14
Y13
Y12
Y11
Y10
5V
C4650
1u
C4660
10V
47
C4685
10V 47
R4684
910
C4681
1u
L4502
10
C4591
10V
47
C4592
0.01
5V
Q4601
MSD601RS
R4604
10k
R4525
560
Q4602
MSD601RS
R4615
10k
WB
COL
LOW
HI
KIL
C4601
47p
R4603
560
C4604
0.01
R4608
0
C4620
0.01
R4614
10k
Q4604
MSD601RS
C4624
0.001
R4618
220
R4624
1k
Q4605
MSB709RS
R4601
680
L4508
10
R4605
10k
C4603
120p
R4609
680
R4619
47k
C4630
50V
1
D4502
MA3030J
MA3030L
R4620
220
C4631
50V
1
R4621
47k
YC1
M13
GND
VIDEO-IN
ANG. 5V
NC
DEG. 5V
NC
12V
Y-OUT
TP302
TP303
TP306
C4610
10V
47
C4617
0.01
C4621
0.01
R4616
100k
C4627
0.01
C4612
0.01
C4616
50V
0.47
R4602
3.3k
IC4501
UPC1862GS-E2
SCO
CVCC1
TINT
CIN
ACCP
CKO
CKF
COUT
APCF
CGND
SCOF1
SCOF2
SCOF3
CVCC2
CVCC3
VCO0
DIVS
ESC1
SSI
CSO
VSSI
HDF
HDO
HKO
SGND
HSOF1
HSOF2
HSOF3
AFCP
VCC
BGPE
H50
CPO
F10
VSO
N/P
ANALOG
C4613
25V
4.7
R4610
4.7k
C4605
50V
0.1
C4614
0.022
C4625
180p
C4628
50V
1500p
R4623
2.7k
R4617
2.2k
R4622
270
X4502
TAFCS8503F35
C4606
10V
47
C4611
18p
C4622
22p
X4501
TSS2159-B
R4612
510
L4506
100
TP301
C4609
0.01
C4618
68p
R4606
100
Q4606
MSD601RS
C4626
0.01
R4626
1.5k
R4628
10k
C4629
10V
47
C4633
50V
4.7
C4632
0.01
R4625
8.2k
Q4607
MSD601RS
R4629
10k
VTR
HSS
CLPI
VDI
C4615
10V
47
C4623
0.01
C4619
0.01
4fsc. GND
Svnc. GND
TP305
Q4603
MSD601RS
BVCO
C4635
0.01
R4630
1k
R4611
560
R4607
680
R4613
5.6k
4fsc
LC4507
EXCCET103U
C4510
0.01
C4509
16V 47
TP304
L4512 100
C4671
1u
BVCO
DVDD
KIL
CLPI
VDI
AGND
AVDD
COMP
IC45
UPD648
WA7
WA6
WA5
WA4
WA3
WA2
WA1
WA0
RA7
RA6
L4513
100
C4674
10V
47
C4675
1u
RA5
RA4
RA3
RA2
RA1
RA0
DG. 5V
L4514
100
WA0
WA1
WA2
WA3
DI0
DI1
DI2
DI3
DO0
DO1
DO2
DO3
4504
S1123

YC–Board Schematic
All Models


IC4502
UPC659AGS-E2
IC4503
UPD6487GF
TNPA0365AA
YC
TNPA0040AA
C4506
N4776AST1
Q4501
Q4504
MSD601RS
Q4505
Q4506
MSD601RS
Q4507
MSD601RS
Q4604
MSD601RS
Q4605
MSB709RS
Q4606
MSD601RS
Q4607
MSD601RS
Q4701
MSD601RS
Q4702
MSD601RS
Q4703
MSB709RS
Q4704
MSB709RS
Q4751
MSD601RS
Q4752
MSD601RS
Q4753
MSB709RS
Q4754
MSB709RS
DL4501
TAX10113
DL4502
TAX10113
DL4503
TAX10113
D4502
MA3030J
MA3030L
D4503
MA151KTX
LC4502
TAX10069
LC4504
TAX10069
LC4505
TAX10069
X4502
TAFCSB503F35
L4510
100
L4511
10
L4512 100
L4513
100
L4514
100
L4515
100
L4516
10
YC2
M14
GND
C-OUT
NC
SID
SIK
TP307
TP308
TP309
TP310
TP311
JS1
Y-OUT
C-OUT
12V
5V
DG. 5V
Sync. GND
DG-GND
VRT
NC
AVCC
V-IN
AGND
P-CL
V-CL
V-RB
CLK
OVER
DB1
DB2
DB3
DGND
DVCC
DB4
DB5
DB6
DB7
DB8
CLPI
VDI
HSS
KIL
VTR
SSI
CSO
VSSI
HDF
HDO
HKO
SGND
HSOF1
HSOF2
HSOF3
AFCF
VCC
BGPE
HSO
CPO
FIO
VSO
N/P
SB2
SB1
SB0
SID
SIK
SIBI
SIBO
Y17
Y16
Y15
Y14
Y13
Y12
Y11
Y10
WA7
WA6
WA5
WA4
WA3
WA2
WA1
WA0
RA7
RA6
RA5
RA4
RA3
RA2
RA1
RA0
DY0
DY1
DY2
DY3
DY4
DY5
DY6
DY7
DY8
DC1
DC2
DC3
DC4
DC5
DC6
DC7
DC8
VTR
SEP
DGND
DVDD
DVDD
BVCO
DVDD
KIL
CLPI
VDI
AGND
IOY
AVDD
COMP
VREF
IREF
AVDD
IOC
AGND
HSS
DGND
DI0
DI1
DI2
DI3
DO0
DO1
DO2
DO3
N.C.
WE
VSS
TEST
RE
OE
R4508
1k
R4509
1k
R4510
1k
R4511
1k
R4517
1.5k
R4518
18k
R4519
2.2k
R4523
560
R4524
560
R4527
12k
C4504
16V 10
C4507
50V
1
C4508
0.01
R4616
100k
R4617 2.2k
R4618
220
R4619
47k
R4620
220
R4621
47k
R4622
270
R4623
2.7k
R4624
1k
R4625
8.2k
R4626
1.5k
R4628
10k
R4629
10k
R4630
1k
C4624
0.001
C4625
180p
C4626
10V
47
C4627
0.01
C4629
50V
1500p
C4630
50V
C4631
50V
C4632
0.01
C4633
50V
4.7
R4650
10k
R4651
22k
R4652
3.9k
C4651
6.3V
100
C4652
0.1
C4653
0.1
C4654
10V
47
C4655
0.1
C4656
0.1
C4657
0.1
C4658
0.1
C4659
1u
C4660
10V
47
C4671
1u
C4674
10V
47
C4675
1u
C4676
1u
C4677
1u
C4679
10V
47
C4680
1u
C4681
1u
C4682
50V
1
C4683
0.1
C4684
10V
47
C4685
10V 47
R4681
1.8k
R4682
200
R4683
3.6k
R4684
910
R4701
200
R4702
15k
R4703
10k
R4704
1k
R4705
1k
R4706
220
R4707
220
R4708
1k
R4710
2.2k
R4711
220
R4712
1k
R4718
39
R4736
560
C4701
16V 47
C4703
47p
R4751
15k
R4752
10k
R4753
1k
R4754
1k
R4755
1k
R4756
220
R4757
220
R4759
1.2k
R4760
150
R4761
680
R4719
560
R4721
560
R4792
47
R4793
47
Q15
Q19

E F G H



Q–Board Transistors

	B	C	E
Q1581	6.70	13.90	6.80
Q1582	0.00	13.90	0.00
Q1583	13.90	0.00	13.90
Q1901	1.20	5.20	0.60
Q1902	5.20	12.00	4.50
Q1903	1.20	6.90	0.00
Q1904	6.90	12.00	6.20
Q1905	0.00	4.00	0.90
Q1906	7.40	12.00	6.70

	B	C	E
Q1907	0.00	7.30	0.60
Q1908	−0.20	0.60	0.00
Q1909	0.60	2.20	0.00
Q451	0.60	0.00	0.00
Q453	0.00	0.00	17.20
Q454	−16.90	17.00	−17.00
Q455	0.00	12.00	0.00
Q563	−1.20	−19.20	−0.80
Q836	14.50	17.50	13.90

Q–Board Voltage Measurements

IC1901
01 .. 2.90
02 .. 3.50
03 .. 3.40
04 .. 0.00
05 .. 2.90
06 . 12.00
07 .. 7.80

IC451
01 .. −15.80
02 ... 17.00
03 .... 0.00
04 .... 0.00
05 ... 17.00
06 .... 0.30
07 .. −16.90

IC452
01 .. 0.00
02 .. 2.00
03 .. 1.40
04 .. 0.00
05 .. 2.00
06 .. 2.60
07 .. 0.00
08 . 12.00

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Q–Board Schematic
All Models

TNPA0040AA Ⓠ

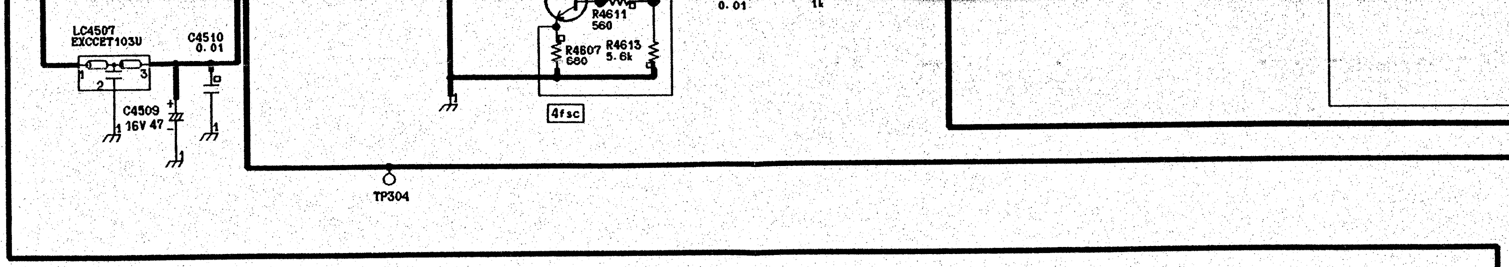
12V
12V
IC451
TVC14747
TVC15672-1
V PARA

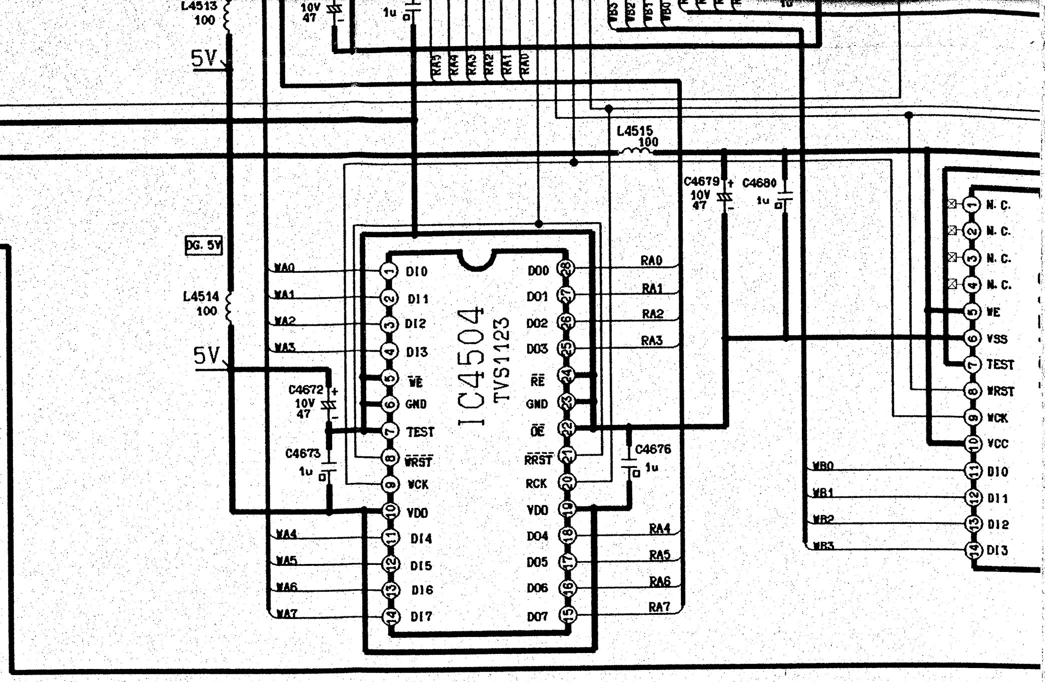
MTC9705703C1

Sheet 5 of 6
Side A

YC, Q-Board Schematic
Voltages, All Models

PT-51G50U/CU/LU/PU/TU PT-51G52V/CV/LV/PV/TV/XV PT-61G52V/CV


LC4507
EXCCET103U
C4510
0.01
C4509
16V 47
R4611
560
R4607
680
R4613
5.6k
4fsc
0.01
1k
TP304


L4513
100
5V
10V
47
1u
DG. 5V
L4514
100
5V
L4515
100
C4679
10V
47
C4680
1u
C4672
10V
47
C4673
1u
C4676
1u
IC4504
TVS1123
WA0
WA1
WA2
WA3
WA4
WA5
WA6
WA7
DI0
DI1
DI2
DI3
WE
GND
TEST
WRST
WCK
VDD
DI4
DI5
DI6
DI7
DO0
DO1
DO2
DO3
RE
GND
OE
RRST
RCK
VDD
DO4
DO5
DO6
DO7
RA0
RA1
RA2
RA3
RA4
RA5
RA6
RA7
N.C.
N.C.
N.C.
N.C.
WE
VSS
TEST
WRST
WCK
VCC
DI0
DI1
DI2
DI3
WB0
WB1
WB2
WB3

3

4

5
A5

YC–Board Voltage Measurements

IC4501

1	3.00	19	0.10
2	4.90	20	2.40
3	2.60	21	2.20
4	3.10	22	0.30
5	1.10	23	4.00
6	3.90	24	0.10
7	2.20	25	5.00
8	2.40	26	3.30
9	2.20	27	2.70
10	0.10	28	3.80
11	2.90	29	3.80
12	2.90	30	0.10
13	3.00	31	0.10
14	4.90	32	0.10
15	4.90	33	4.10
16	3.10	34	3.10
17	0.00	35	4.10
18	3.70	36	3.10

IC4502

1	0.00	13	1.80
2	0.00	14	1.50
3	0.60	15	2.40
4	0.00	16	3.00
5	0.00	17	5.00
6	0.30	18	0.10
7	0.00	19	2.00
8	2.70	20	2.40
9	5.00	21	2.40
10	0.00	22	1.30
11	3.20	23	0.20
12	1.90	24	2.10

IC4504

1	2.40	15	1.30
2	2.30	16	2.30
3	2.40	17	1.90
4	2.10	18	2.10
5	0.10	19	4.90
6	0.10	20	1.20
7	0.10	21	4.70
8	4.70	22	0.10
9	1.20	23	0.10
10	4.90	24	0.10
11	1.80	25	1.70
12	2.30	26	2.20
13	2.60	27	2.10
14	1.60	28	2.20

IC4503

1	0.10	26	2.30	51	0.10	76	0.10
2	0.00	27	2.40	52	0.10	77	0.00
3	0.10	28	1.20	53	0.10	78	0.00
4	0.10	29	2.40	54	5.00	79	0.00
5	0.10	30	0.10	55	4.60	80	0.00
6	0.10	31	0.00	56	4.60	81	0.00
7	0.00	32	2.00	57	0.00	82	4.70
8	0.10	33	2.20	58	0.00	83	0.00
9	0.10	34	1.70	59	0.00	84	0.00
10	2.10	35	0.00	60	0.00	85	2.50
11	2.40	36	2.00	61	0.00	86	0.00
12	1.30	37	0.00	62	0.00	87	0.10
13	2.50	38	0.00	63	0.10	88	0.00
14	2.00	39	0.00	64	0.00	89	0.00
15	3.00	40	1.20	65	0.00	90	0.00
16	2.40	41	1.20	66	0.10	91	0.00
17	2.00	42	2.50	67	0.10	92	0.00
18	1.80	43	2.40	68	0.10	93	5.00
19	1.90	44	2.20	69	0.10	94	0.50
20	1.40	45	2.20	70	0.10	95	0.10
21	2.60	46	2.40	71	0.00	96	0.00
22	2.30	47	0.00	72	0.00	97	0.30
23	2.80	48	0.00	73	0.00	98	0.10
24	2.10	49	0.00	74	0.00	99	0.00
25	2.40	50	4.70	75	0.00	100	0.00

IC4506

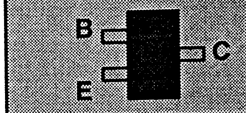
1	0.00	15	2.70
2	0.00	16	2.50
3	0.00	17	2.50
4	0.00	18	2.50
5	4.90	19	4.90
6	0.10	20	1.20
7	0.10	21	0.10
8	0.10	22	4.90
9	1.20	23	0.10
10	4.90	24	4.90
11	2.40	25	0.00
12	2.20	26	0.00
13	2.40	27	0.00
14	2.40	28	0.00

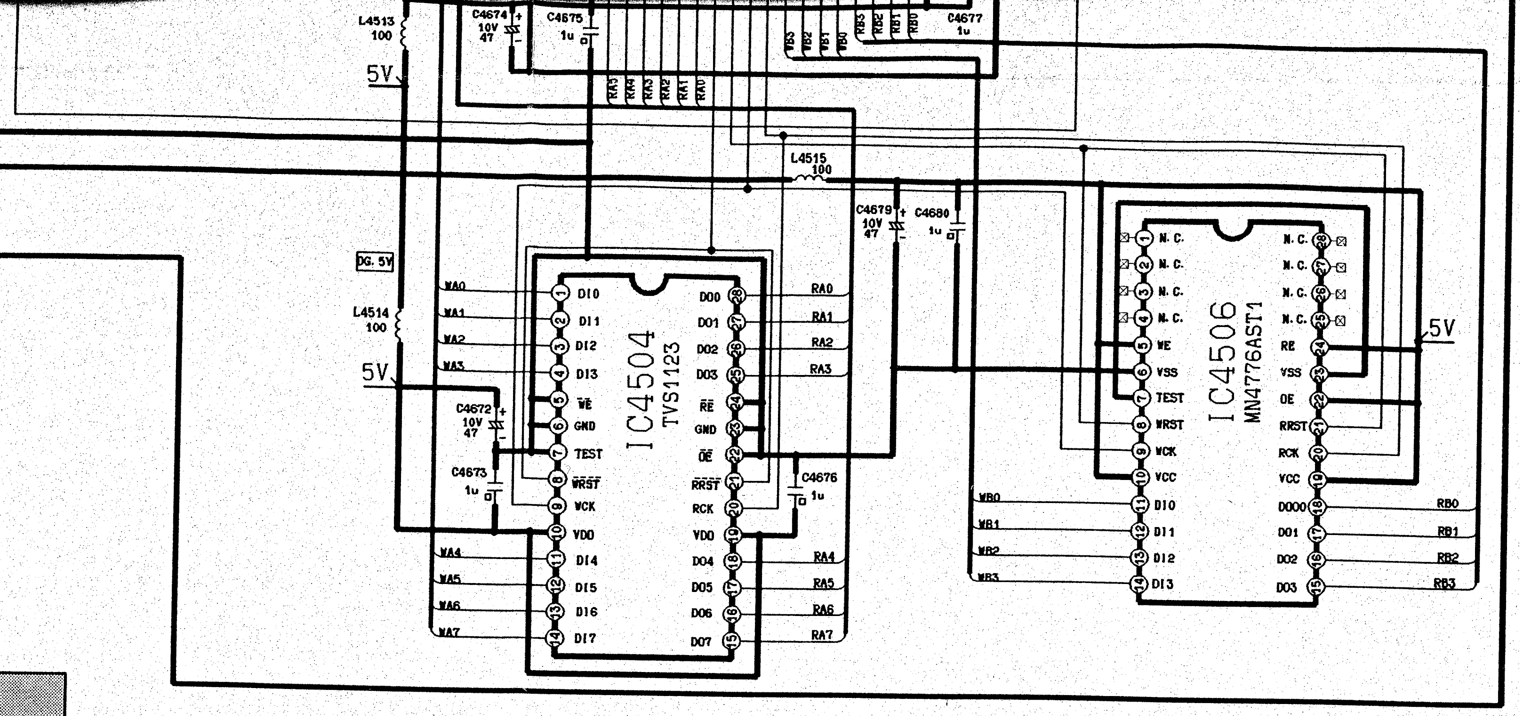
YC–Board Transistors

Ref.	B	C	E
Q4501	5.40	0.10	6.00
Q4502	6.00	11.70	5.40
Q4503	4.10	9.20	3.50
Q4504	6.00	11.70	5.40
Q4505	9.20	11.70	8.50
Q4506	1.30	11.70	1.60
Q4507	2.20	12.00	1.50
Q4601	6.00	11.70	5.40
Q4602	2.40	5.00	1.80
Q4603	2.90	5.00	2.30
Q4604	0.70	0.00	0.10

Ref.	B	C	E
Q4605	1.60	0.10	2.
Q4606	0.70	0.10	0.
Q4607	1.00	0.70	0.
Q4701	4.50	0.00	3.
Q4702	2.00	10.70	1.
Q4703	10.70	2.80	11
Q4704	2.80	0.10	3
Q4751	4.50	11.70	3
Q4752	2.00	10.80	1
Q4753	10.80	7.10	11
Q4754	7.10	0.10	7

CHIP TRANSISTOR LEAD DESIGNATION




L4513
100
C4674
10V
47
C4675
1u
C4677
1u
5V
L4515
100
C4679
10V
47
C4680
1u
DG. 5V
L4514
100
5V
C4672
10V
47
C4673
1u
C4676
1u
IC4504
TVS1123
IC4506
MN4776AST1
DI0
DI1
DI2
DI3
WE
GND
TEST
WRST
WCK
VDD
DI4
DI5
DI6
DI7
DO0
DO1
DO2
DO3
RE
OE
RRST
RCK
DO4
DO5
DO6
DO7
N.C.
VSS
VCC
WA0
WA1
WA2
WA3
WA4
WA5
WA6
WA7
RA0
RA1
RA2
RA3
RA4
RA5
RA6
RA7
WB0
WB1
WB2
WB3
RB0
RB1
RB2
RB3
5V

1.30
2.30
1.90
2.10
4.90
.20
4.70
.10
.10
.10
.70
.20
.10
.20

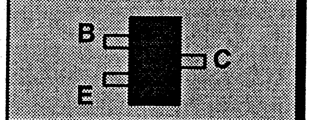
YC–Board Transistors

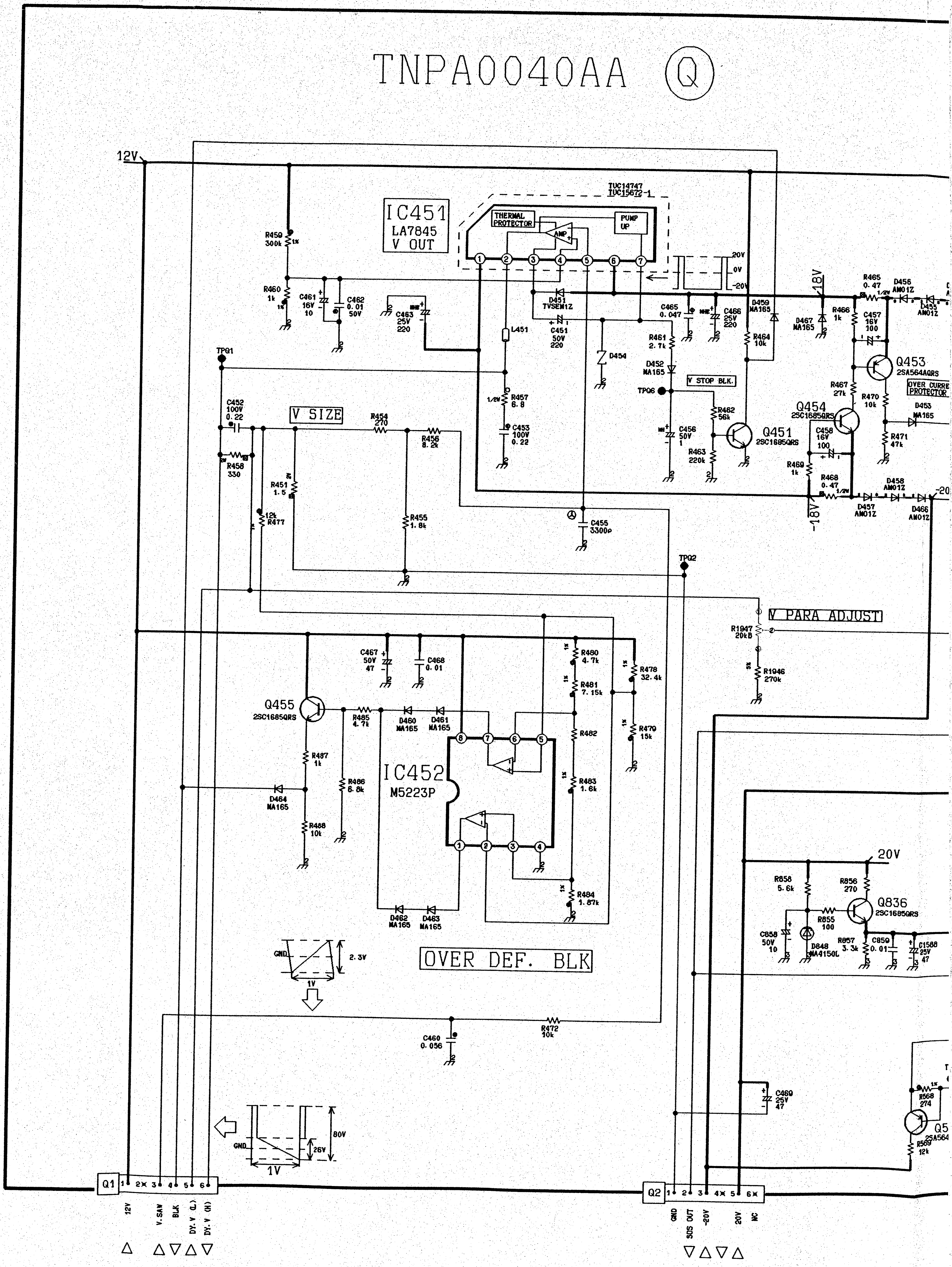
Ref.	B	C	E
Q4501	5.40	0.10	6.00
Q4502	6.00	11.70	5.40
Q4503	4.10	9.20	3.50
Q4504	6.00	11.70	5.40
Q4505	9.20	11.70	8.50
Q4506	1.30	11.70	1.60
Q4507	2.20	12.00	1.50
Q4601	6.00	11.70	5.40
Q4602	2.40	5.00	1.80
Q4603	2.90	5.00	2.30
Q4604	0.70	0.00	0.10

Ref.	B	C	E
Q4605	1.60	0.10	2.30
Q4606	0.70	0.10	0.10
Q4607	1.00	0.70	0.10
Q4701	4.50	0.00	3.90
Q4702	2.00	10.70	1.40
Q4703	10.70	2.80	11.30
Q4704	2.80	0.10	3.50
Q4751	4.50	11.70	3.90
Q4752	2.00	10.80	1.30
Q4753	10.80	7.10	11.40
Q4754	7.10	0.10	7.70

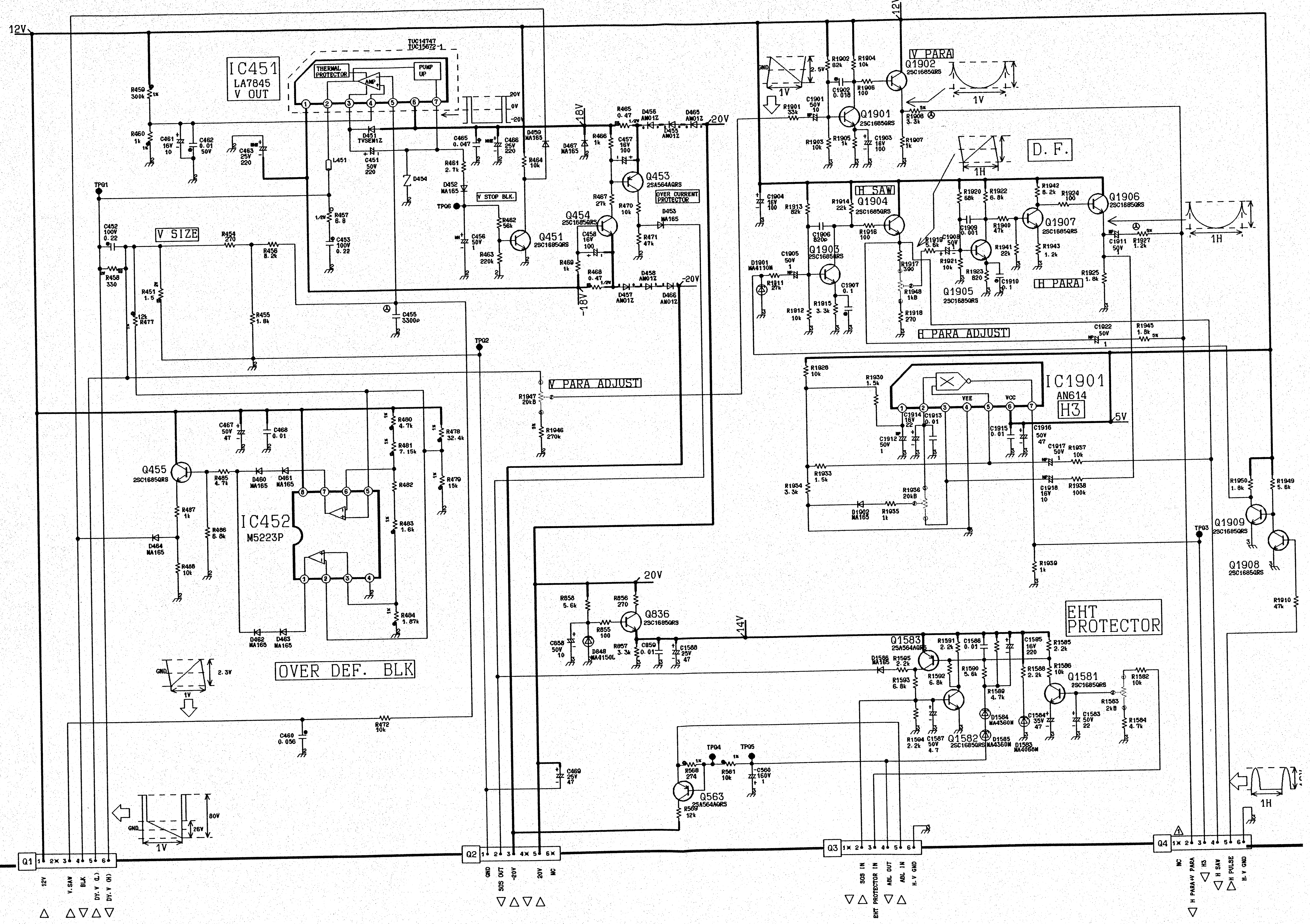
2.70
2.50
.50
.50
.90
.20
.10
.90
.10
.90
.00
.00
.00
.00

CHIP TRANSISTOR LEAD DESIGNATION




TNPA0040AA
Q
12V
IC451
LA7845
V OUT
THERMAL PROTECTOR
AMP
PUMP UP
TUC14747
TUC15672-1
R459
300k
R460
1k
C461
16V
10
C462
0.01
50V
C463
25V
220
D451
TVSEM1Z
C451
50V
220
L451
C465
0.047
C466
25V
220
20V
0V
-20V
18V
R465
0.47
D456
AM01Z
D455
AM01Z
D459
MA165
D467
MA165
R466
1k
C457
16V
100
R464
10k
R461
2.7k
D454
D452
MA165
V STOP BLK.
TP01
TP06
R462
56k
Q453
2SA564AQRS
OVER CURRENT PROTECTOR
R467
27k
R470
10k
D453
MA165
Q454
2SC1685QRS
C456
50V
1
Q451
2SC1685QRS
C458
16V
100
R471
47k
R463
220k
R469
1k
R468
0.47
D458
AM01Z
D457
AM01Z
D466
AM01Z
-18V
-20V
C452
100V
0.22
V SIZE
R454
270
R456
8.2k
R458
330
R457
6.8
C453
100V
0.22
R451
1.5
R477
12k
R455
1.8k
C455
3300p
TP02
V PARA ADJUST
R1947
20kB
R1946
270k
C467
50V
47
C468
0.01
R480
4.7k
R481
7.15k
R478
32.4k
Q455
2SC1685QRS
R485
4.7k
D460
MA165
D461
MA165
R482
R479
15k
R487
1k
IC452
M5223P
R486
6.8k
R483
1.6k
D464
MA165
R488
10k
R484
1.87k
D462
MA165
D463
MA165
GND.
2.3V
1V
OVER DEF. BLK
C460
0.056
R472
10k
80V
26V
1V
GND.
20V
R858
5.6k
R856
270
Q836
2SC1685QRS
R855
100
C858
50V
10
D848
MA4150L
R857
3.3k
C859
0.01
C1588
25V
47
C469
25V
47
R568
274
R569
12k
Q1
12V
V.SAW
BLK
DY.V (L)
DY.V (H)
Q2
GND
SOS OUT
-20V
20V
NC

TNPA0040AA Ⓠ



12V
IC451
LA7845
V OUT
THERMAL PROTECTOR
PUMP UP
AMP
TUC14747
TUC15672-1
V SIZE
V STOP BLK.
OVER CURRENT PROTECTOR
Q451
Q453
Q454
Q455
TP01
TP02
TP06
18V
-18V
20V
-20V
V PARA ADJUST
IC452
M5223P
OVER DEF. BLK
GND
2.3V
1V
80V
26V
12V
V PARA
Q1901
Q1902
Q1903
Q1904
Q1905
Q1906
Q1907
Q1908
Q1909
H SAW
D. F.
1H
H PARA
H PARA ADJUST
IC1901
AN614
H3
VEE
VCC
5V
TP03
20V
Q836
14V
EHT PROTECTOR
Q1581
Q1582
Q1583
Q563
TP04
TP05
Q1
Q2
Q3
Q4
12V
V.SAW
BLK
DY.V (L)
DY.V (H)
GND
SOS OUT
-20V
20V
NC
SOS IN
EHT PROTECTOR IN
ABL OUT
ABL IN
H.V GND
NC
H PARA+V PARA
H3
H SAW
H PULSE
H.V GND

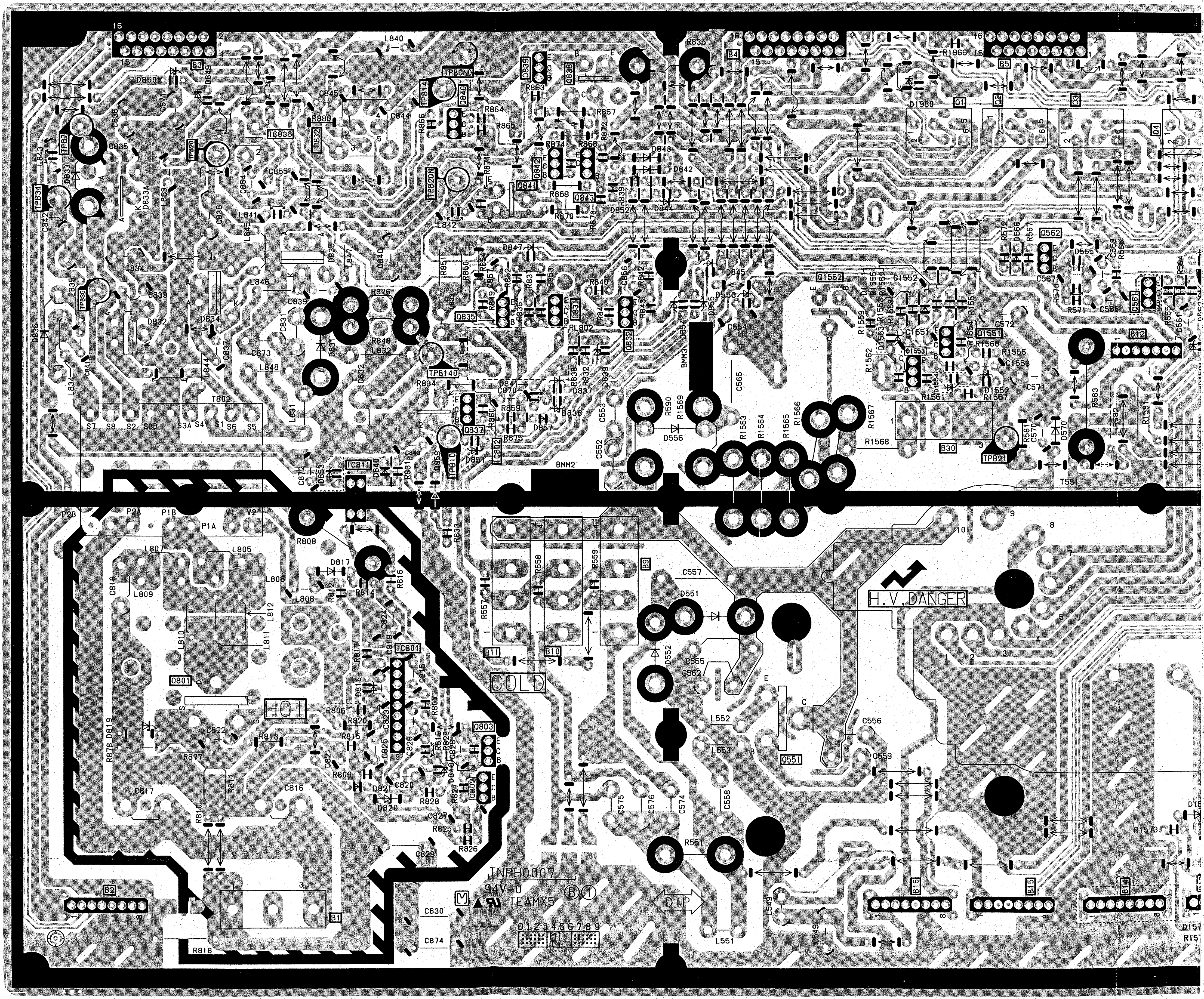
A B C

B–Board TNPH0007
All Models

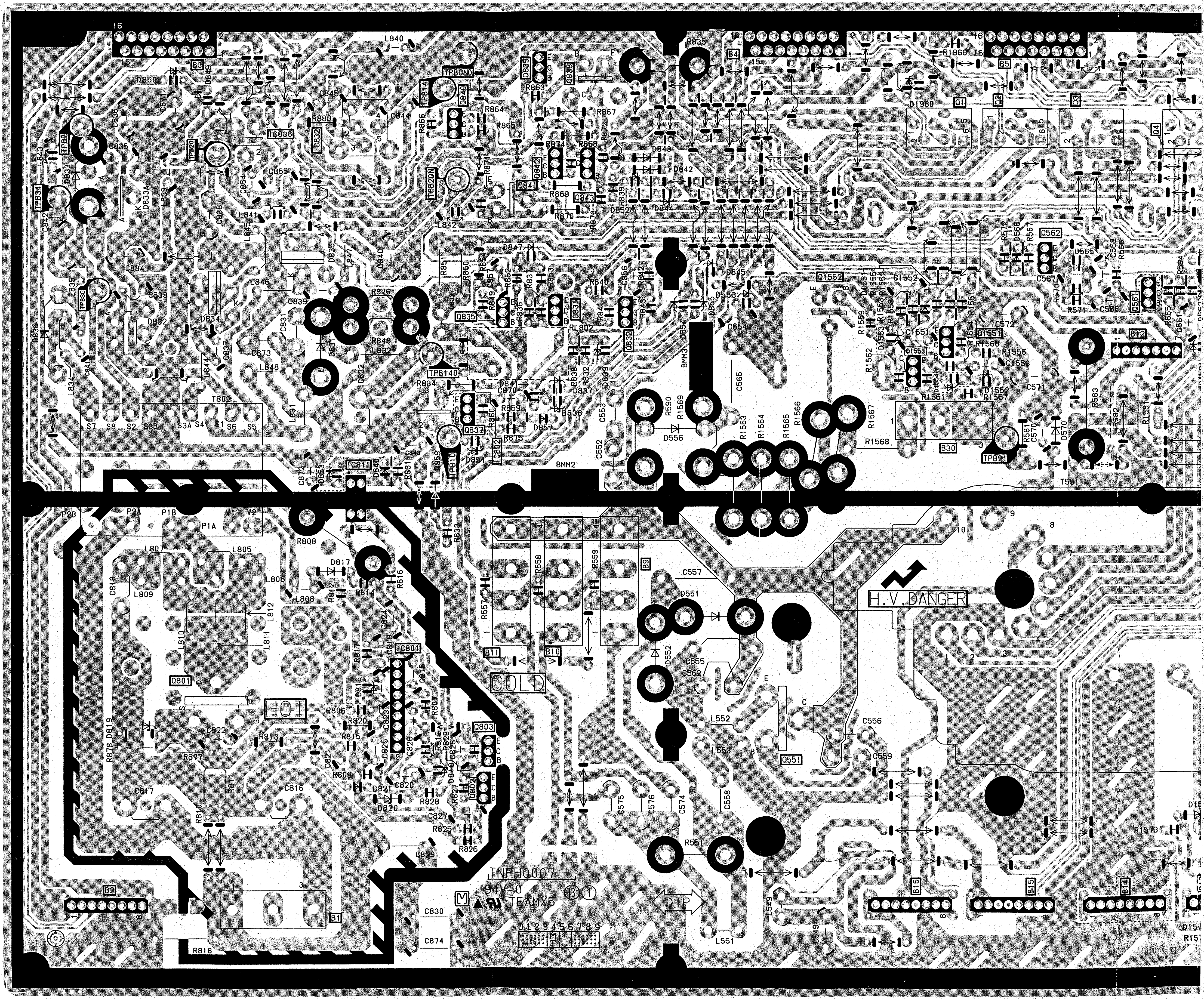
1

2

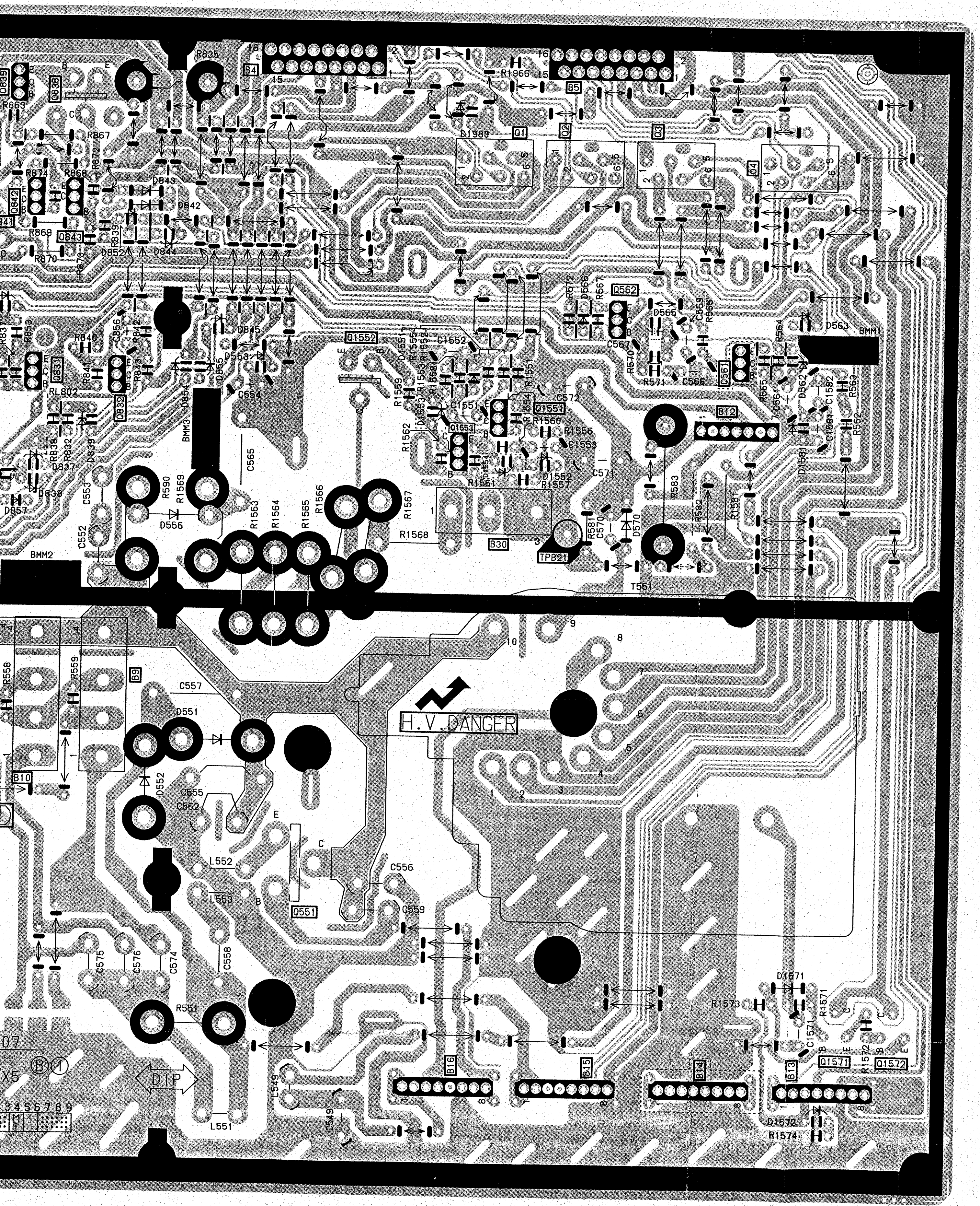
3


B3
B4
B5
B12
B30
B9
B10
B11
B1
B2
B16
B15
B14
TPB7
TPB20
TPB34
TPB59
TPBGND
TPB14
TPB20N
TPB140
TPB10
TPB21
IC836
IC832
IC811
IC801
D850
D849
D833A
D833
D835
D832
D834
D831
D847
D843
D842
D844
D852
D845
D853
D854
D841
D837
D836
D857
D851
D840
D817
D816
D819
D821
D820
D1980
D551
D552
D556
D565
D566
D570
D1552
D1551
Q839
Q838
Q840
Q842
Q841
Q843
Q835
Q836
Q831
Q832
Q837
Q802
Q801
Q803
Q1
Q2
Q3
Q4
Q562
Q561
Q1552
Q1551
Q1553
Q551
L840
L843
L841
L845
L846
L847
L848
L832
L842
L831
L834
L844
L807
L805
L806
L809
L808
L810
L811
L812
L552
L553
L549
L551
T802
T551
R835
R863
R864
R865
R866
R867
R868
R869
R870
R871
R872
R873
R874
R876
R848
R834
R859
R860
R875
R831
R833
R808
R812
R814
R816
R817
R806
R820
R815
R813
R809
R811
R810
R818
R877
R878
R828
R825
R826
R827
R557
R558
R559
R551
R583
R590
R1569
R1563
R1564
R1565
R1566
R1567
R1568
R1966
R1573
C845
C844
C835
C836
C855
C854
C834
C833
C839
C831
C873
C837
C840
C872
C818
C817
C816
C822
C821
C823
C824
C819
C815
C825
C826
C820
C829
C830
C874
C557
C555
C562
C556
C559
C575
C576
C574
C558
C549
C552
C553
C554
C565
C567
C566
C571
C572
C1551
C1552
C1553
S7
S8
S2
S3B
S3A
S4
S1
S6
S5
P2B
P2A
P1B
P1A
V1
V2
BMM2
BMM3
H.V.DANGER
HOT
COLD
TNPH0007
94V-0
TEAMX5
DIP
0 1 2 3 4 5 6 7 8 9
16
15

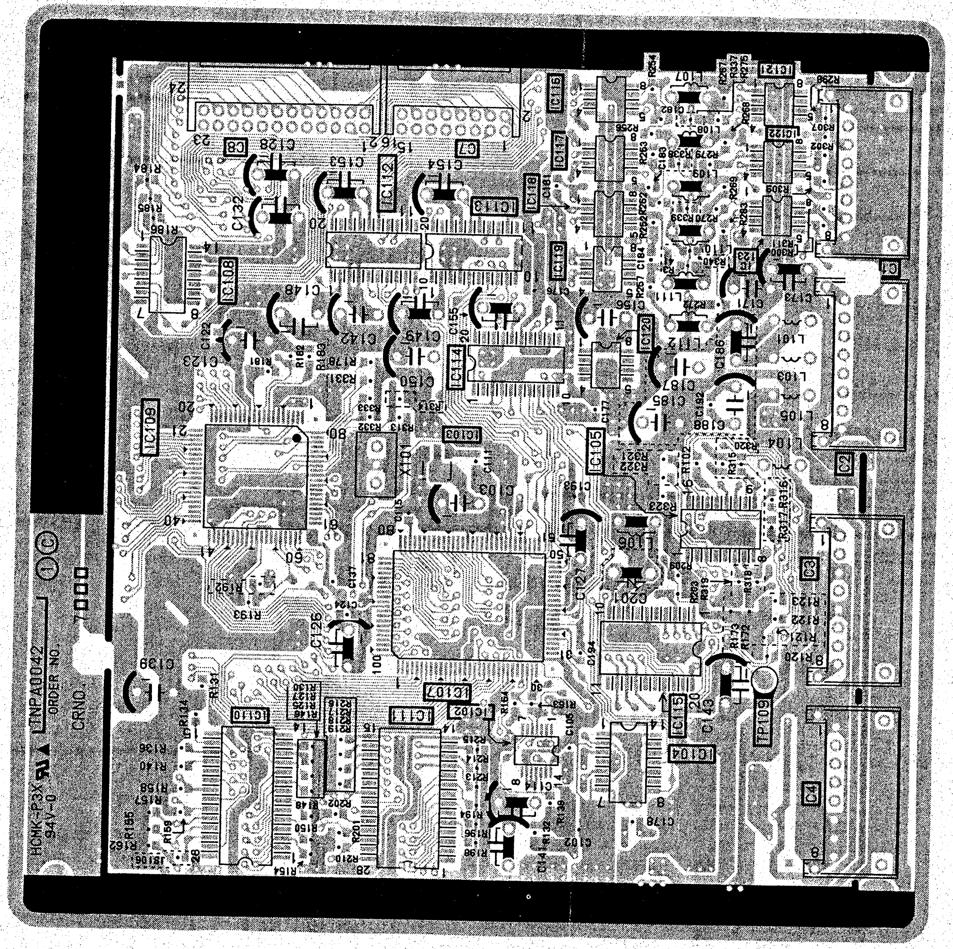
B–Board TNPH0007
All Models


A
B
C
1
2
3
H.V.DANGER
HOT
COLD
TNPH0007
94V-0
TEAMX5
DIP
BMM2
BMM3
T802
T551
IC801
IC811
IC832
IC836
B1
B2
B3
B4
B5
B9
B10
B11
B12
B14
B15
B16
B30
TPBGND
TPB14O
TPB21
TPB34
TPB59
TPB61O
TPB7
TPB14
TPB20
TPB20N
Q1
Q2
Q3
Q4
Q551
Q561
Q562
Q801
Q802
Q803
Q835
Q837
Q1551
Q1552
Q1553
R808
R818
R1573
L551
L552
L553
0 1 2 3 4 5 6 7 8 9

B–Board TNPH0007
All Models

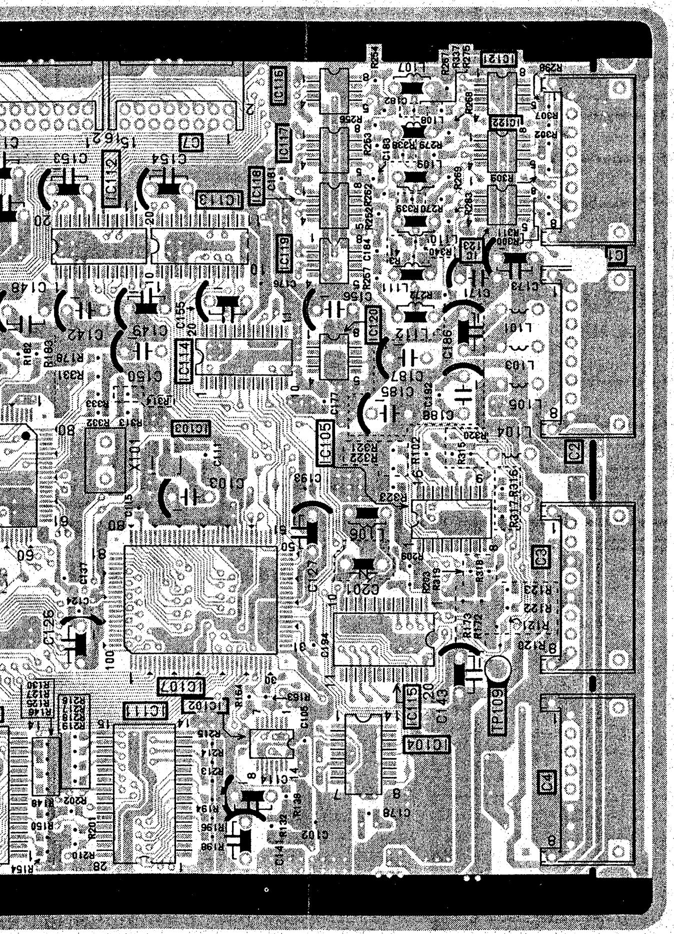

H.V.DANGER
DIP
BMM1
BMM2
BMM3
T551
TPB21
Q551
Q1551
Q1552
Q1553
Q561
Q562
D551
D552
D556
D563
D570
D1571
D1572
L551
L552
L553
C552
C553
C555
C556
C557
C559
C562
C565
C571
C572
C574
C575
C576
C1571
R551
R558
R559
R583
R1563
R1564
R1565
R1566
R1567
R1568
R1569
R1573
R1574
B4
B5
B9
B10
B12
B13
B14
B15
B16
B30
Q1571
Q1572
D1980
R1966
R835

C–Board TNPA0042
All Models
(TOP SIDE)

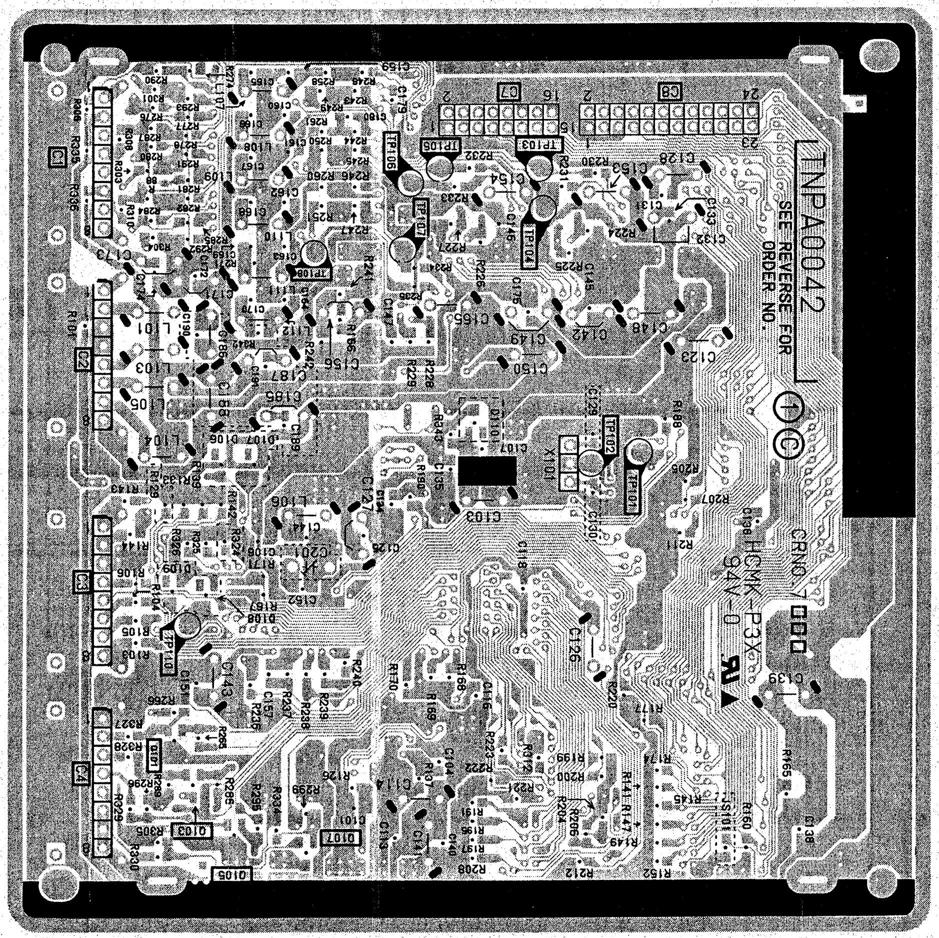

TNPA0042
ORDER NO.
CRNO.
HOMK-P3X
94V-0
IC101
IC102
IC103
IC105
IC107
IC108
IC109
IC110
IC111
IC113
IC114
IC115
IC118
IC119
IC120
IC121
TP109
C2
C3
C4

Not serviceable. Returned to authorized

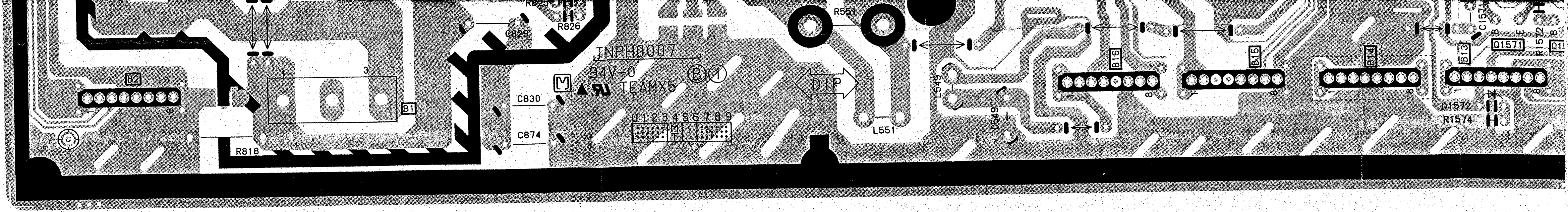
C–Board TNPA0042
All Models
(TOP SIDE)



C–Board TNPA0042
All Models
(BOTTOM SIDE)

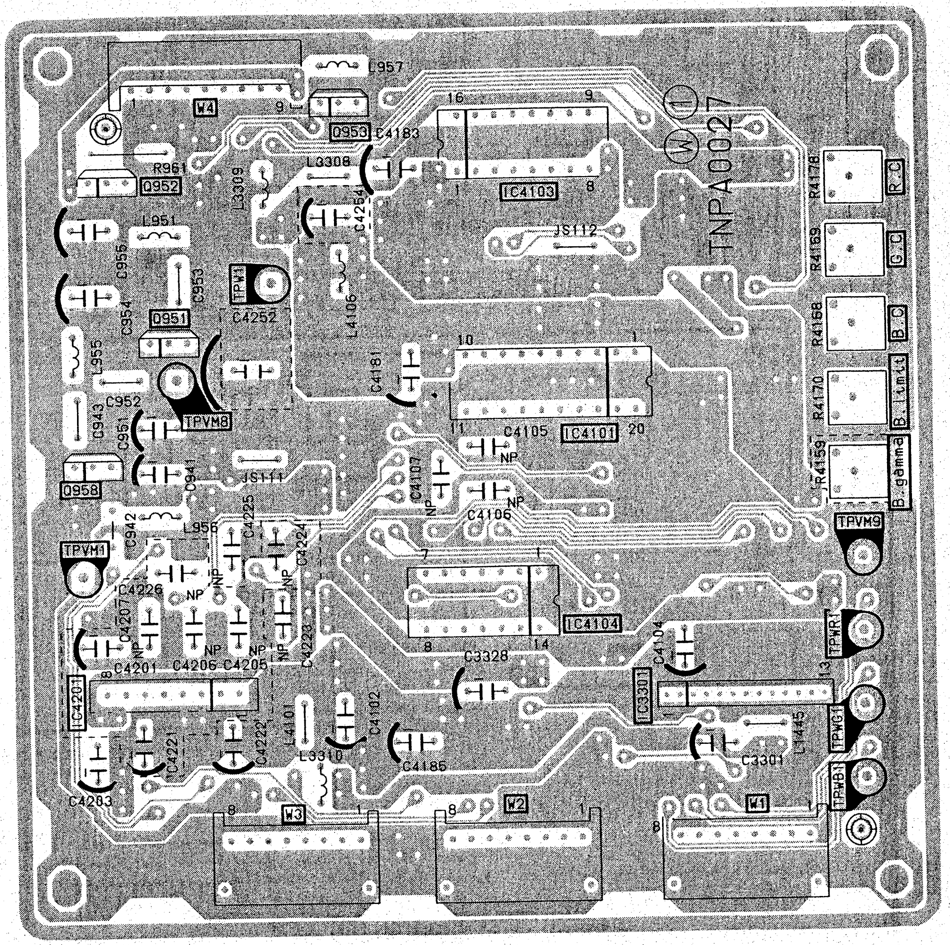

TNPA0042
SEE REVERSE FOR
ORDER NO.
94V-0

Not serviceable. Returned to authorized Factory Service Center for repair.


TNPH0007
94V-0
TEAMX5
DIP
R551
L551
C830
C874
R818
R826
C829
B1
B2
B13
B14
B15
B16
D1571
D1572
R1574
L549
C549

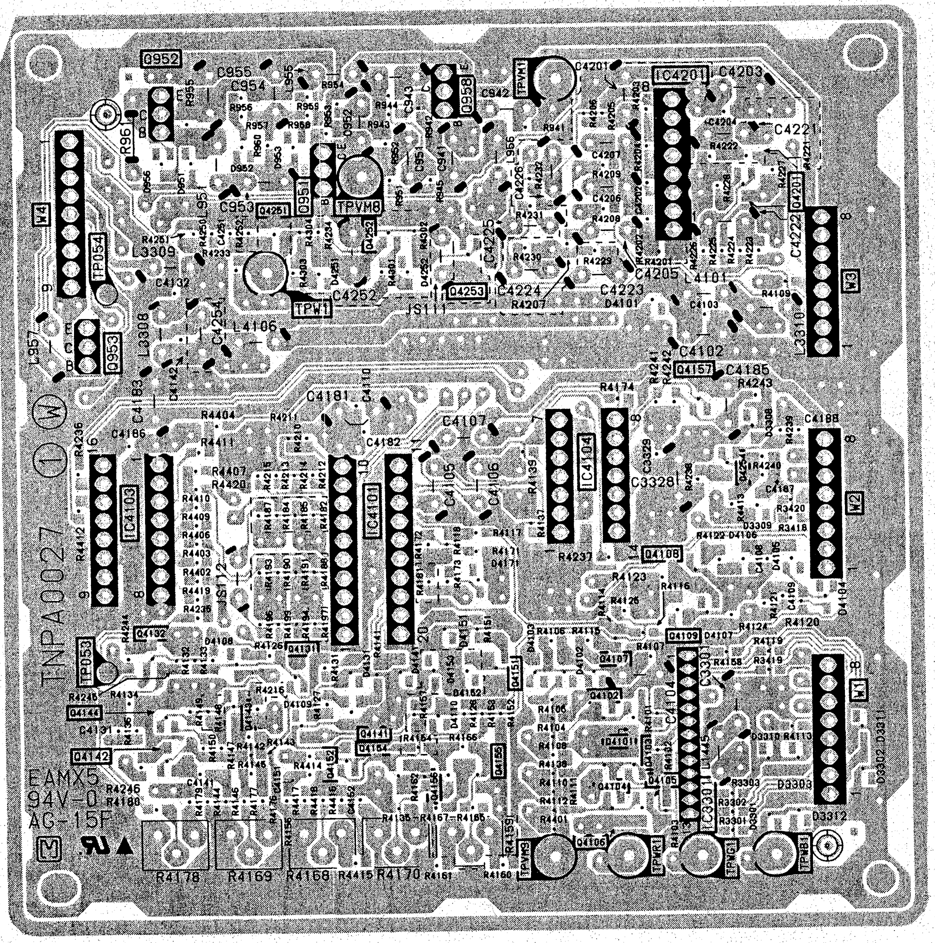
3

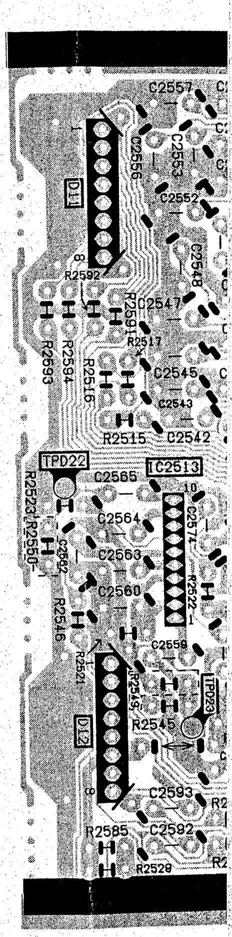
W–Board TNPA0027
All Models
(TOP SIDE)


TNPA0027
W4
W3
W2
W1
IC4103
IC4101
IC4104
IC4201
IC3301
Q951
Q952
Q953
Q956
TPVW1
TPVM8
TPVM9
TPVH1
TPWG1
TPWB1
TPWR1
R.C
G.C
B.C
B.timing
B.gamma
JS111
JS112
L951
L955
L956
L3308
L3309
L3310
L4101
L4106
L4445
C957
C4183
C4254
C4252
C4181
C4105
C4106
C4107
C3328
C3301
C4186
C4283
C4201
C4206
C4205
C4226
C4222
C4221
R961
R4178
R4159
R4168
R4170

4

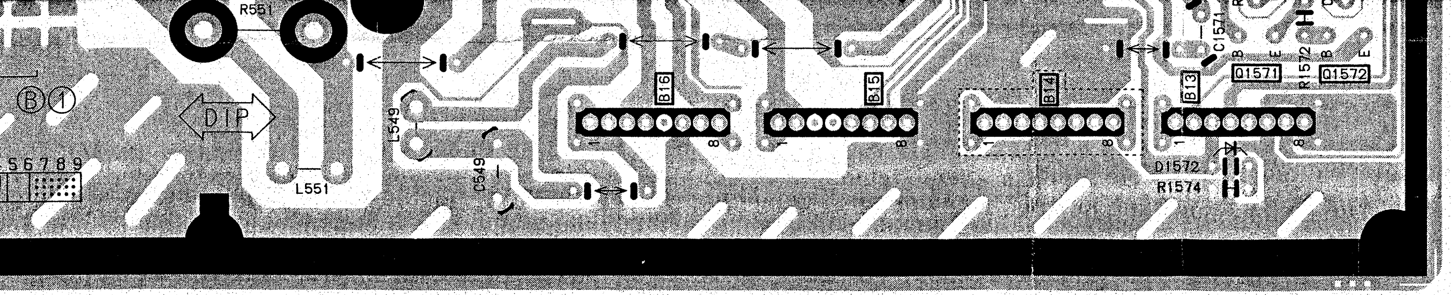
W–Board TNPA0027
All Models
(BOTTON SIDE)


TNPA0027
EAMX5
94V-0
AG-15F
W4
W3
W2
W1
Q952
Q953
IC4201
IC4103
IC4101
IC4104
IC3301
TPVW1
TPVM8
TPD54
TPD53
C4201
C4203
C4221
C4222
C4102
C4185
C4188
C4181
C4182
C4107
C3328
R4178
R4169
R4168
R4170

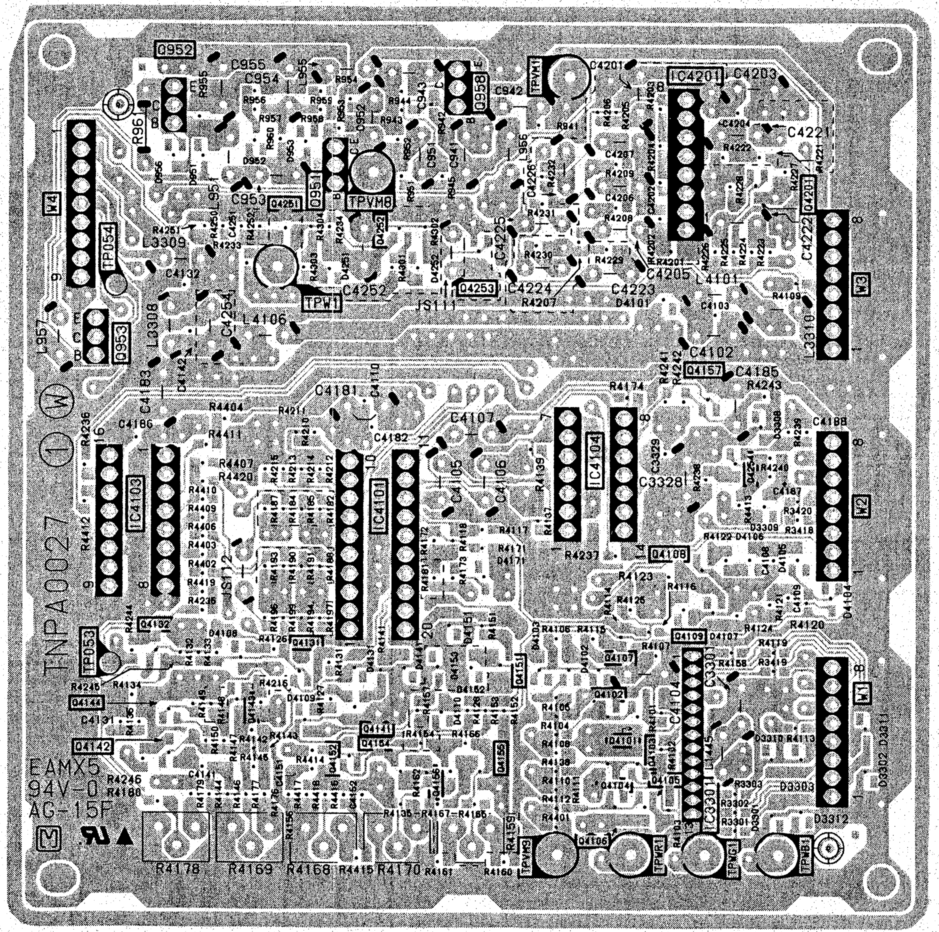

C2557
C2545
C2542
C2565
C2564
C2563
C2560
C2513
TPD22
R2515
R2517
R2585
C2593
C2592
R2529

5

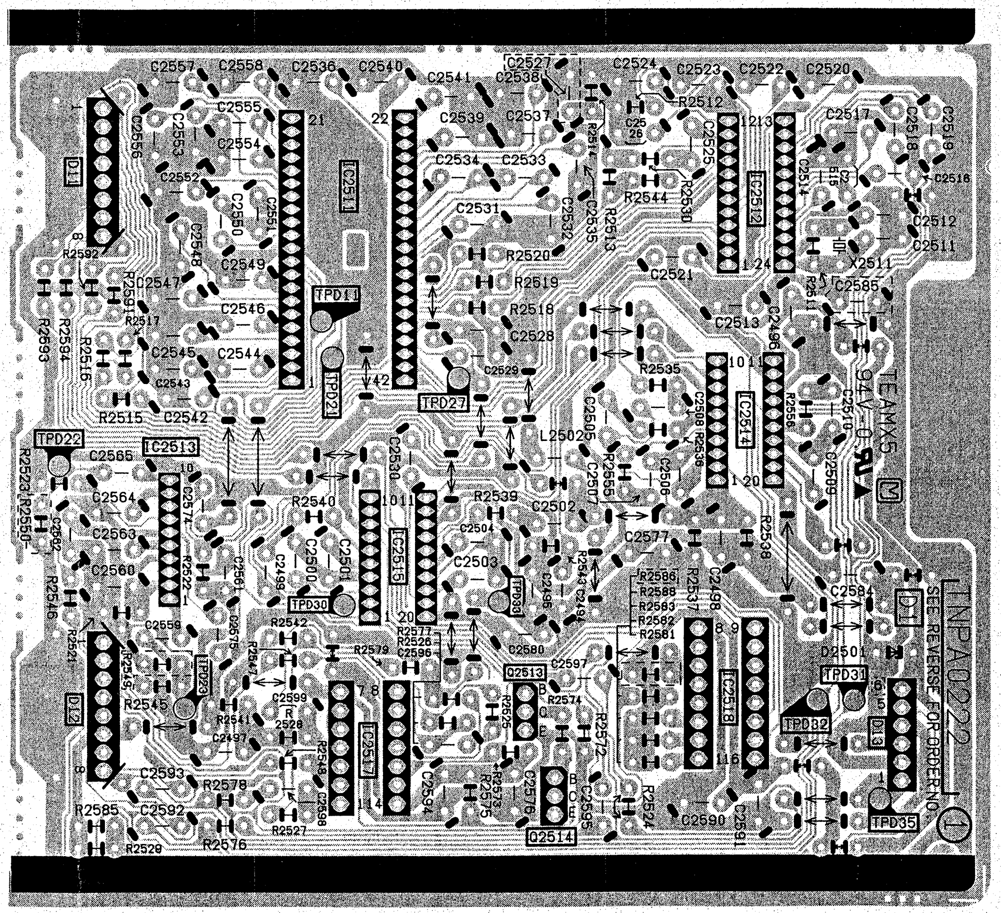
Not serviceable. Returned to authorized



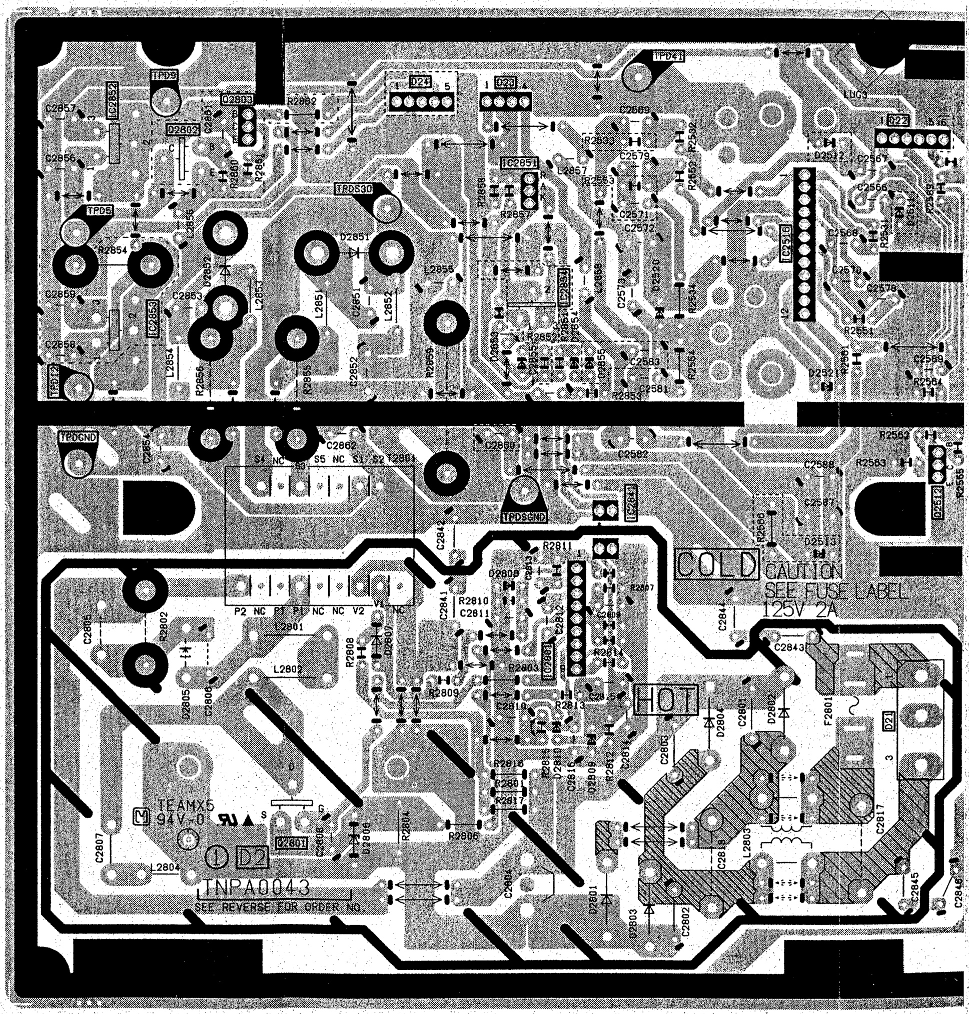
W–Board TNPA0027
All Models
(BOTTON SIDE)



D1–Board TNPA0222
All Models



D2–Board TNPA0043
All Models



IMPORTANT SAFETY NOTICE

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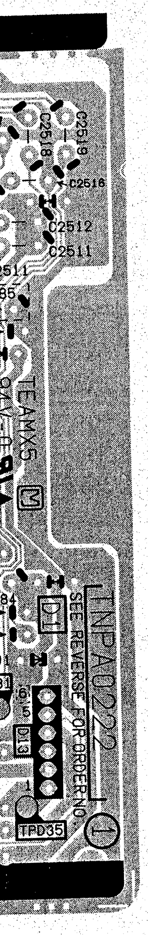
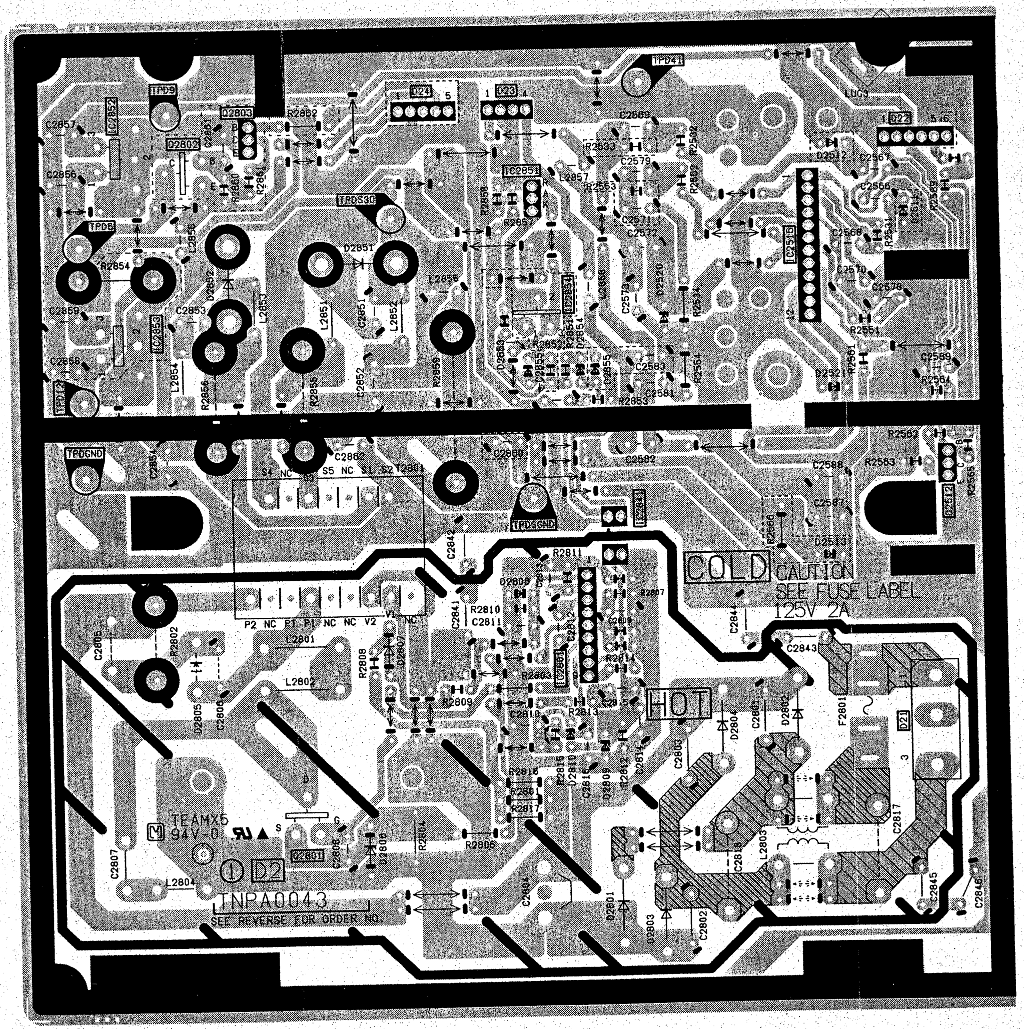
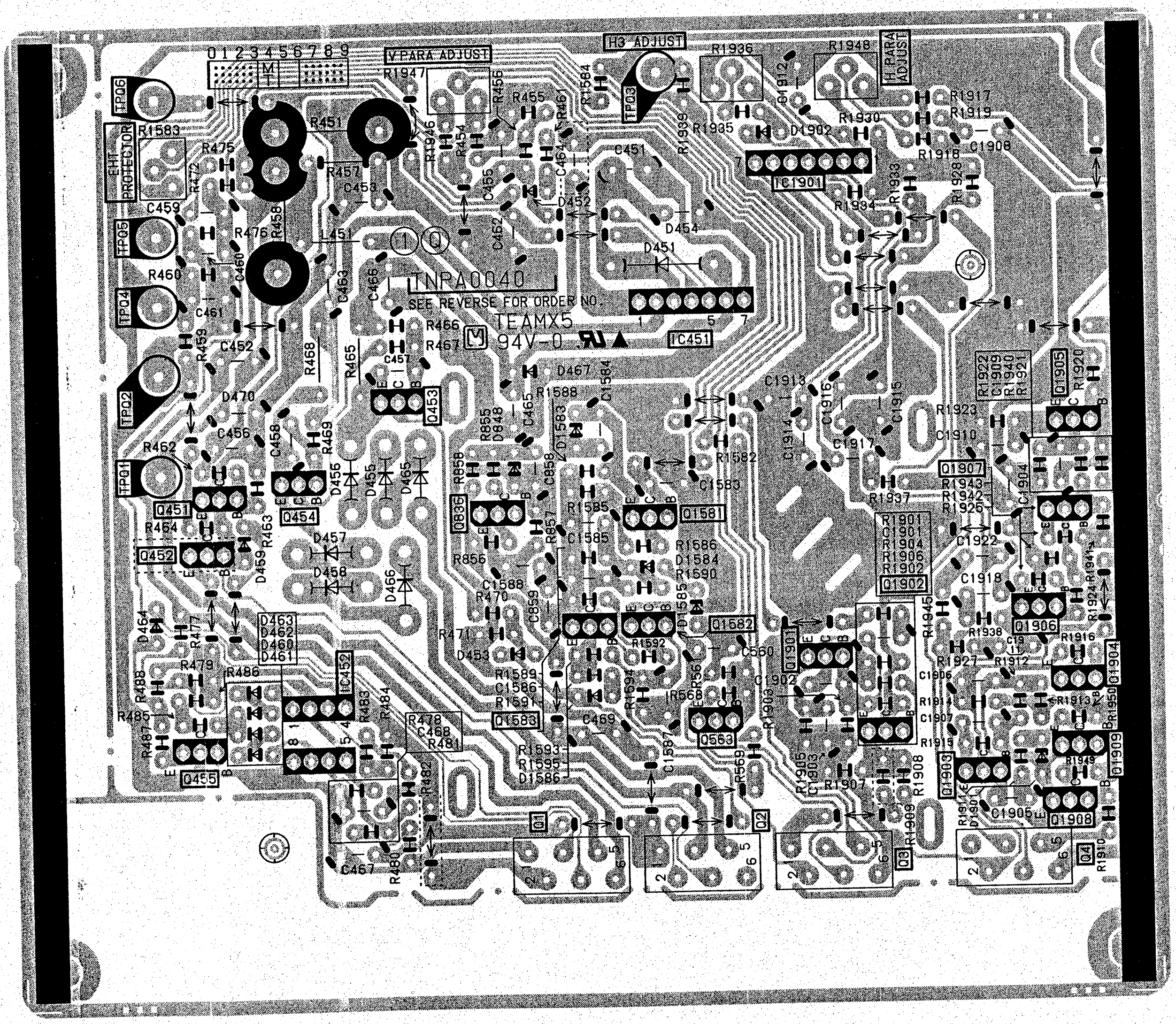
Not serviceable. Returned to authorized Factory Service Center for repair.


TEAMX5
TNPA0222
SEE REVERSE FOR ORDER NO.
TPD35

D2–Board TNPA0043
All Models


TNPA0043
SEE REVERSE FOR ORDER NO.
TEAMX5
94V-0
COLD
CAUTION
SEE FUSE LABEL
125V 2A
HOT
F2801
TPD41
TPD5GND

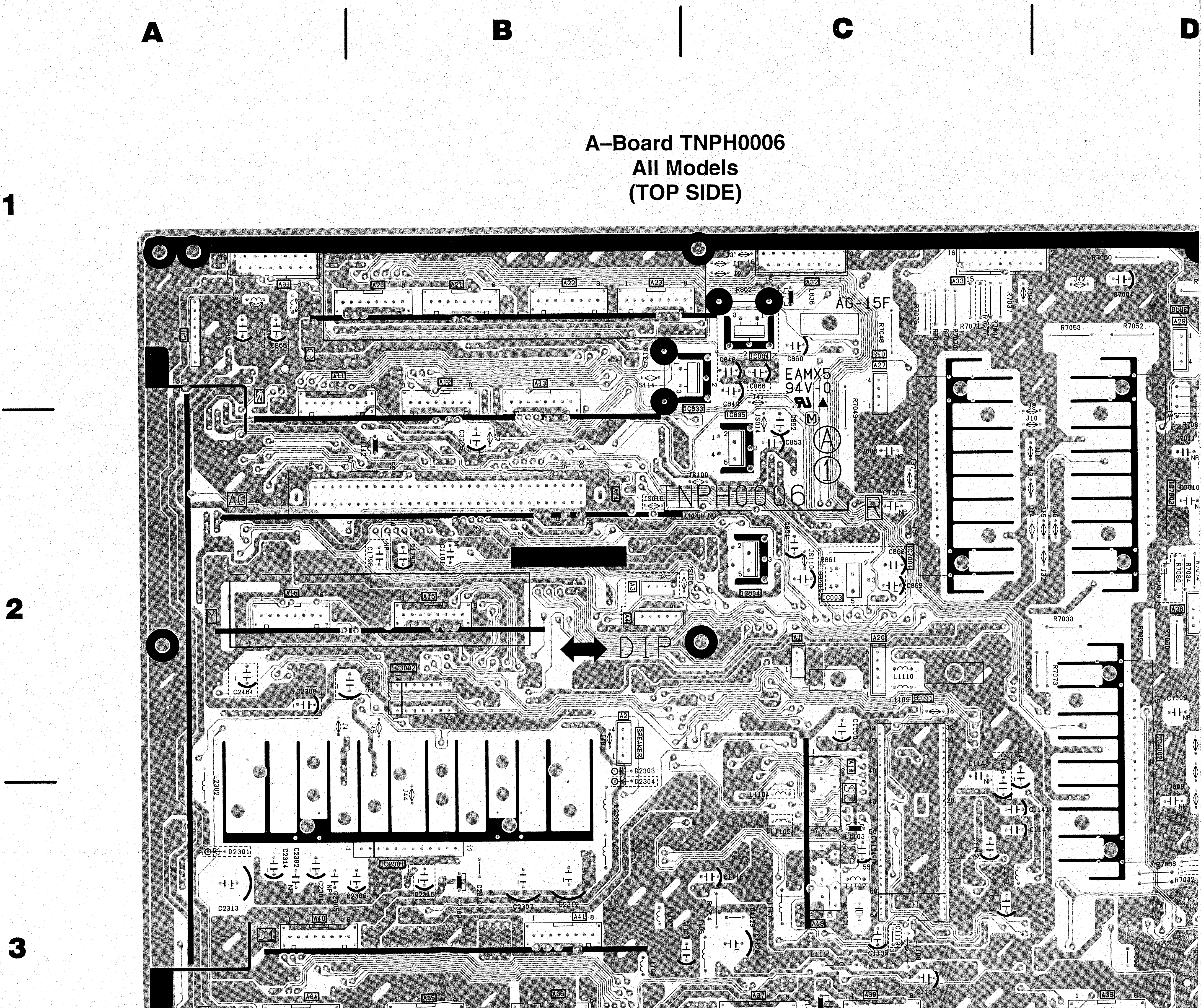
Q–Board TNPA0040
All Models


V PARA ADJUST
H3 ADJUST
H PARA ADJUST
EHT PROTECTOR
TNPA0040
SEE REVERSE FOR ORDER NO.
TEAMX5
94V-0
IC451
IC1901

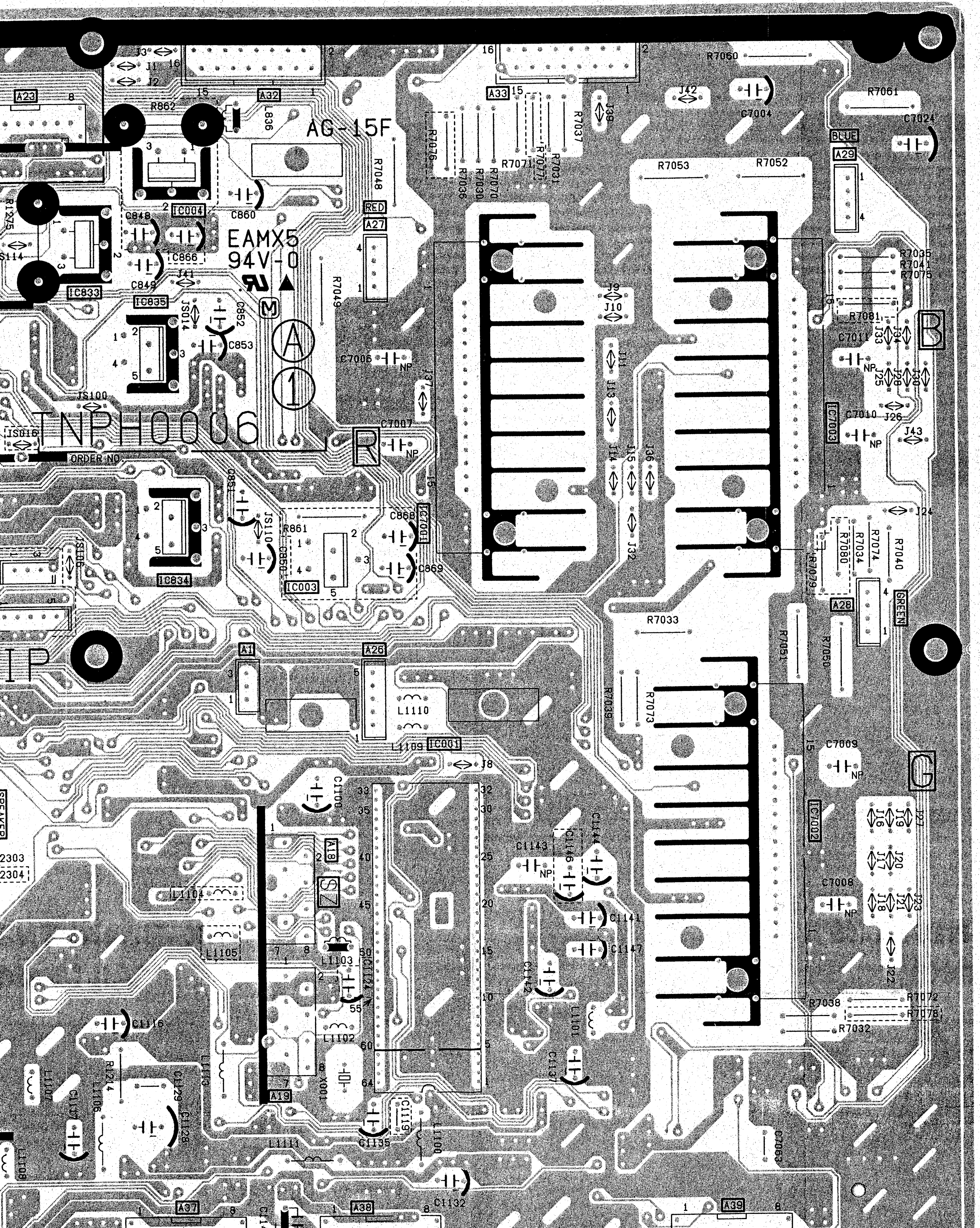
MPORTANT SAFETY NOTICE

SCHEMATIC DIAGRAM INCORPORATES SPECIAL
URES THAT ARE IMPORTANT FOR PROTECTION FROM
DIATION. FIRE AND ELECTRICAL SHOCK HAZARDS.
SERVICING IT IS ESSENTIAL THAT ONLY
FACTURERS SPECIFIED PARTS BE USED FOR THE
CAL COMPONENTS DESIGNATED WITH A ⚠ IN THE
MATIC.

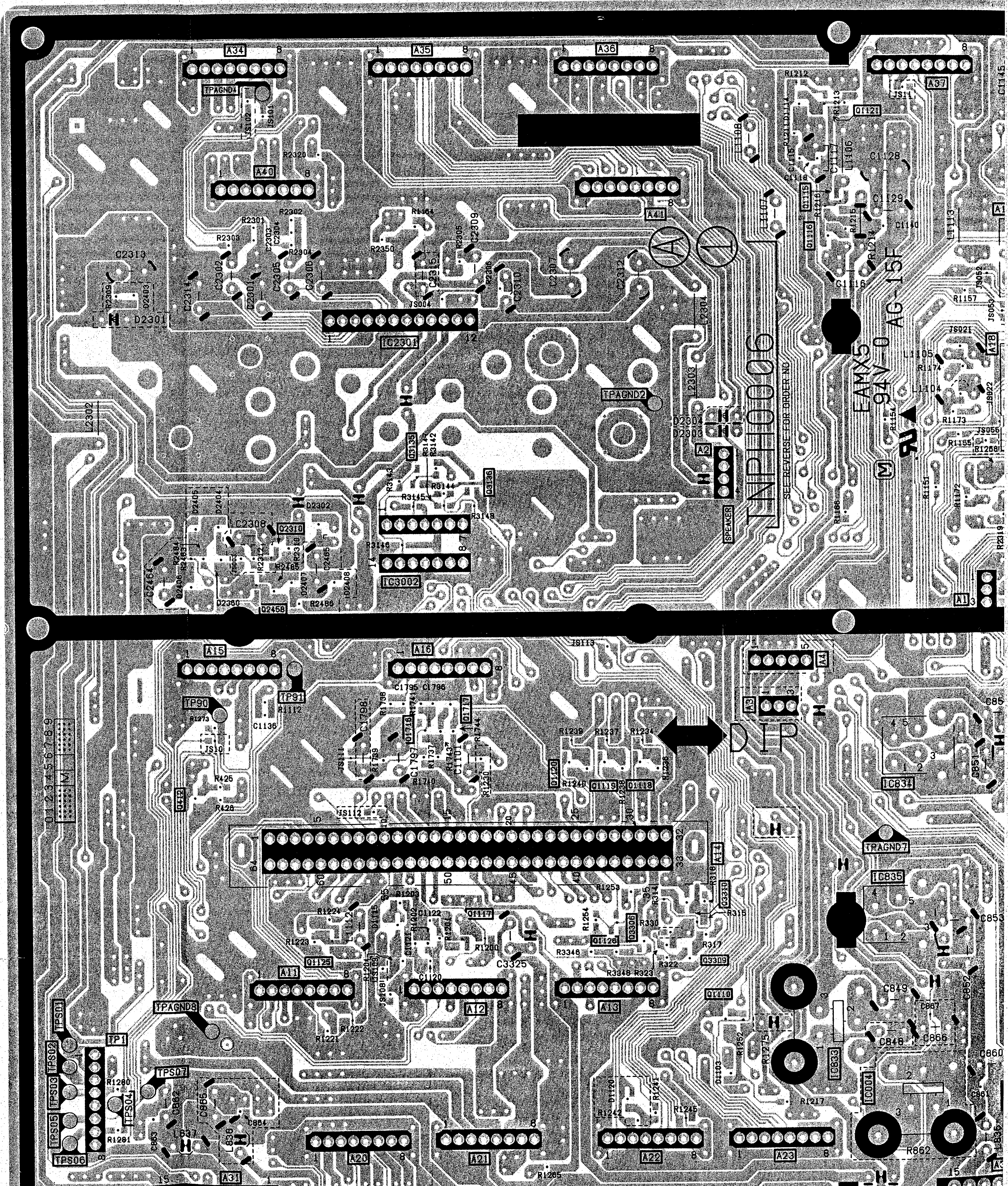
A–Board TNPH0006
All Models
(TOP SIDE)


A
B
C
D
1
2
3
TNPH0006
ORDER NO.
AG-15F
EAMX5
94V-0
DIP
SPEAKER
RED
BLUE
A1
A2
A3
A4
A11
A12
A13
A14
A15
A16
A19
A20
A21
A22
A23
A26
A27
A28
A29
A31
A32
A33
A34
A35
A36
A37
A38
A39
A40
A41
AG
W
Y
D1
R
IC833
IC834
IC835
IC004
IC003
IC001
IC2301
IC3002
IC7001
IC7002
IC7003
L836
L837
L838
R862
R861
R7060
R7053
R7052
R7048
R7049
R7033
R7073
C860
C866
C848
C849
C852
C853
C865
C869
C7004
C7006
C7007
C7009
C7008
C2313
C2314
C2302
C2305
C2306
C2307
C2308
C2315
C2464
D2301
D2303
D2304
L2302
L1110
L1104
L1105
L1102
L1103
L1111
C1132
C1135
C1141
C1143
C1147
BC1

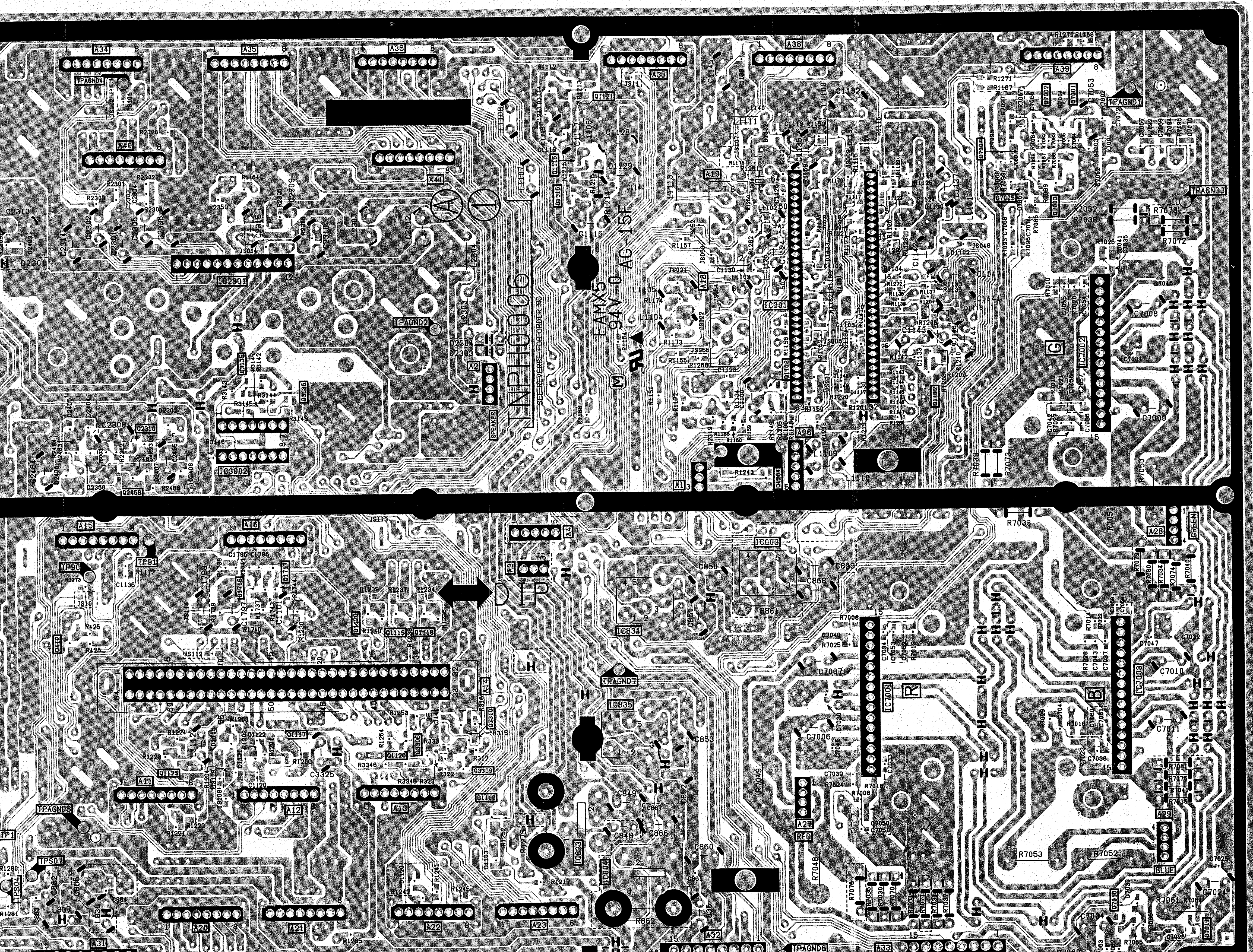
ard TNPH0006
ll Models
TOP SIDE)


AG-15F
EAMX5
94V-0
TNPH0006
ORDER NO
DIP
A
1
B
R
G
BLUE
RED
GREEN
NP
IC004
IC003
IC001
IC833
IC835
IC834
IC7001
IC7002
IC7003
A1
A19
A23
A26
A27
A28
A29
A32
A33
A37
A38
A39
R7060
R7061
R7053
R7052
R7033
R7048
R7049
R7037
R7038
R7032
R7072
R7078
C7004
C7024
C7006
C7007
C7009
C7008
C7010
C7011
C860
C848
C849
C852
C853
C866
C868
C869
R861
R862
L836
L1110
L1109
L1104
L1105
L1103
L1102
L1111
C1100
C1101
C1116
C1119
C1128
C1129
C1132
C1135
C1140
C1141
C1143
C1144
C1147
X1001
JS100
JS016
JS014
JS110

A–Board TNPH0006
All Models
(BOTTOM SIDE)


AG-15F
EAMX5
94V-0
TNPH0006
SEE REVERSE FOR ORDER NO
DIP
A
1
M
IC2301
IC3002
IC833
IC834
IC835
IC003
IC004
A2
A3
A11
A12
A13
A15
A16
A20
A21
A22
A23
A31
A34
A35
A36
A37
A40
A41
TPAGND1
TPAGND2
TPAGND5
TRAGND7
TP1
TP90
TP91
TPS01
TPS02
TPS03
TPS04
TPS05
TPS06
TPS07
D2301
C2306
C3325
Q1125
Q1119
Q1118
Q3309
R862
SPEAKER

A–Board TNPH0006
All Models
(BOTTOM SIDE)


A34
A35
A36
A37
A38
A39
A40
A41
TPAGND1
TPAGND2
TPAGND3
IC2301
IC3002
A2
SPEAKER
TNPH0006
SEE REVERSE FOR ORDER NO
EAMX5
94V-0
AG-15F
IC1001
IC1002
A19
A26
A11
G
A15
A16
TP90
TP91
DIP
IC834
IC835
TPAGND7
IC003
IC7001
R
IC7003
B
A28
GREEN
A27
RED
A29
BLUE
R7053
R7052
R7049
R7048
R7033
TPAGND8
A11
A12
A13
A20
A21
A22
A23
A31
A32
A33
TPAGND6
TP1
TPS07
R862
C853
C860

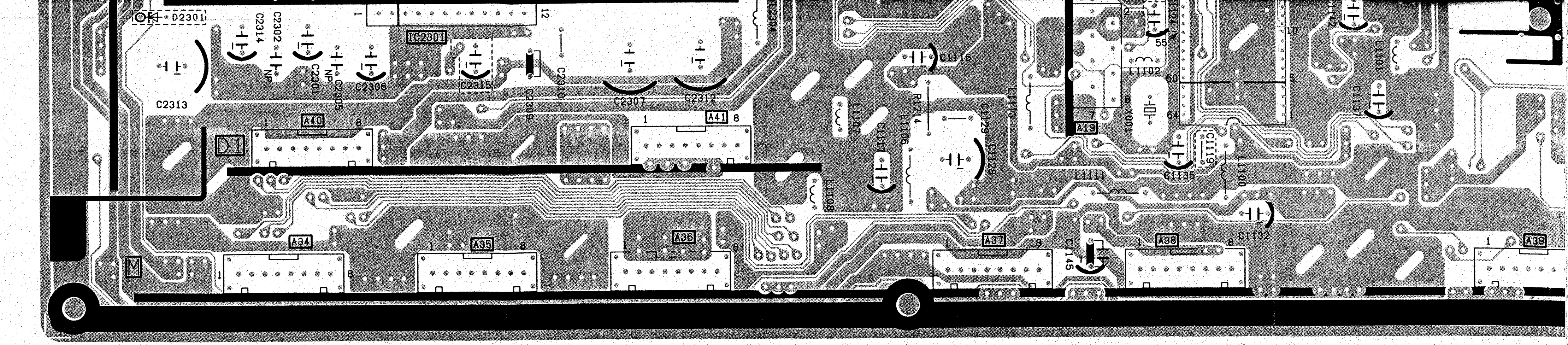
A, M & P Board layouts
All Models

PT–51G50U/CU/LU/PU/TU PT–51G52V/CV/LV/PV/TV/XV PT–61G52V/CV

Sheet 6 of 6
Side A

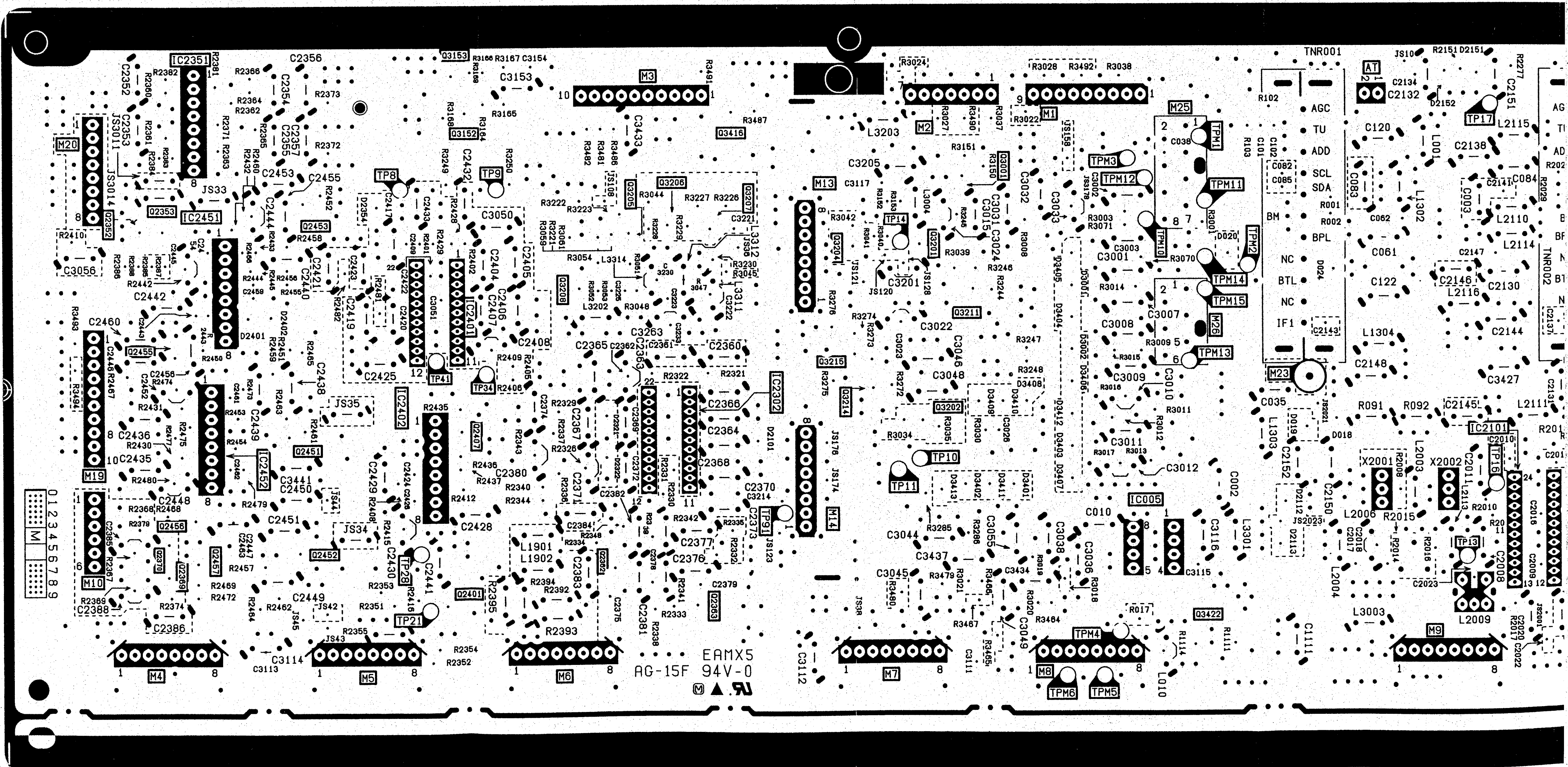
MTC9705703C1

3



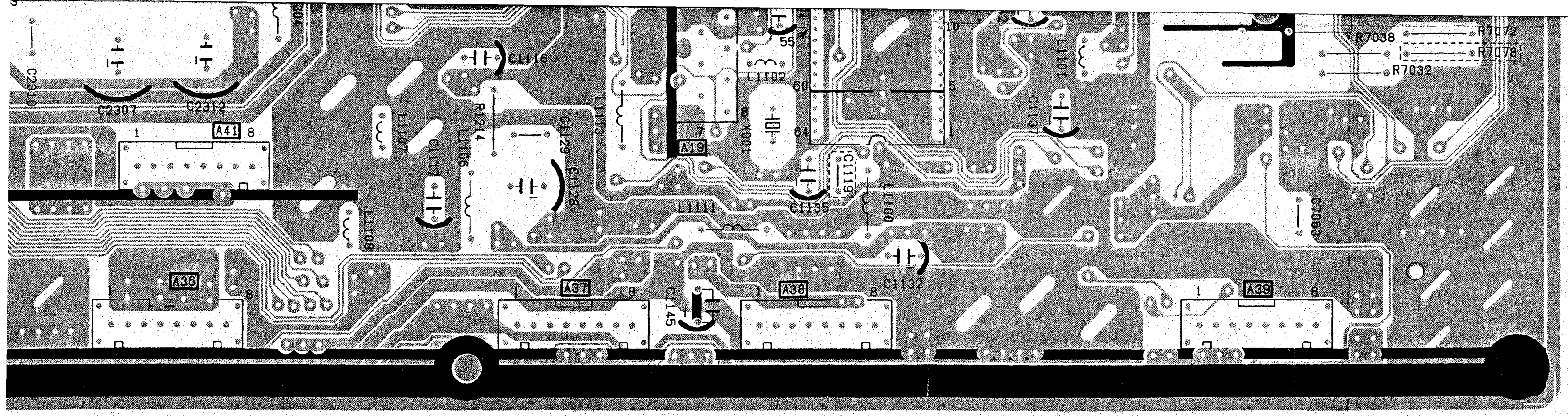
M–Board TNPA0026
All Models

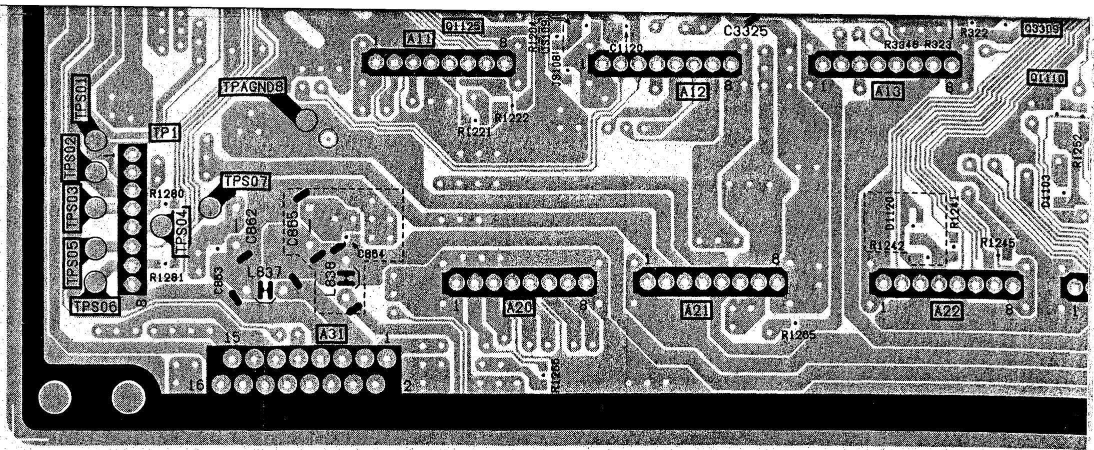
4


EAMX5
AG-15F 94V-0

5

A6





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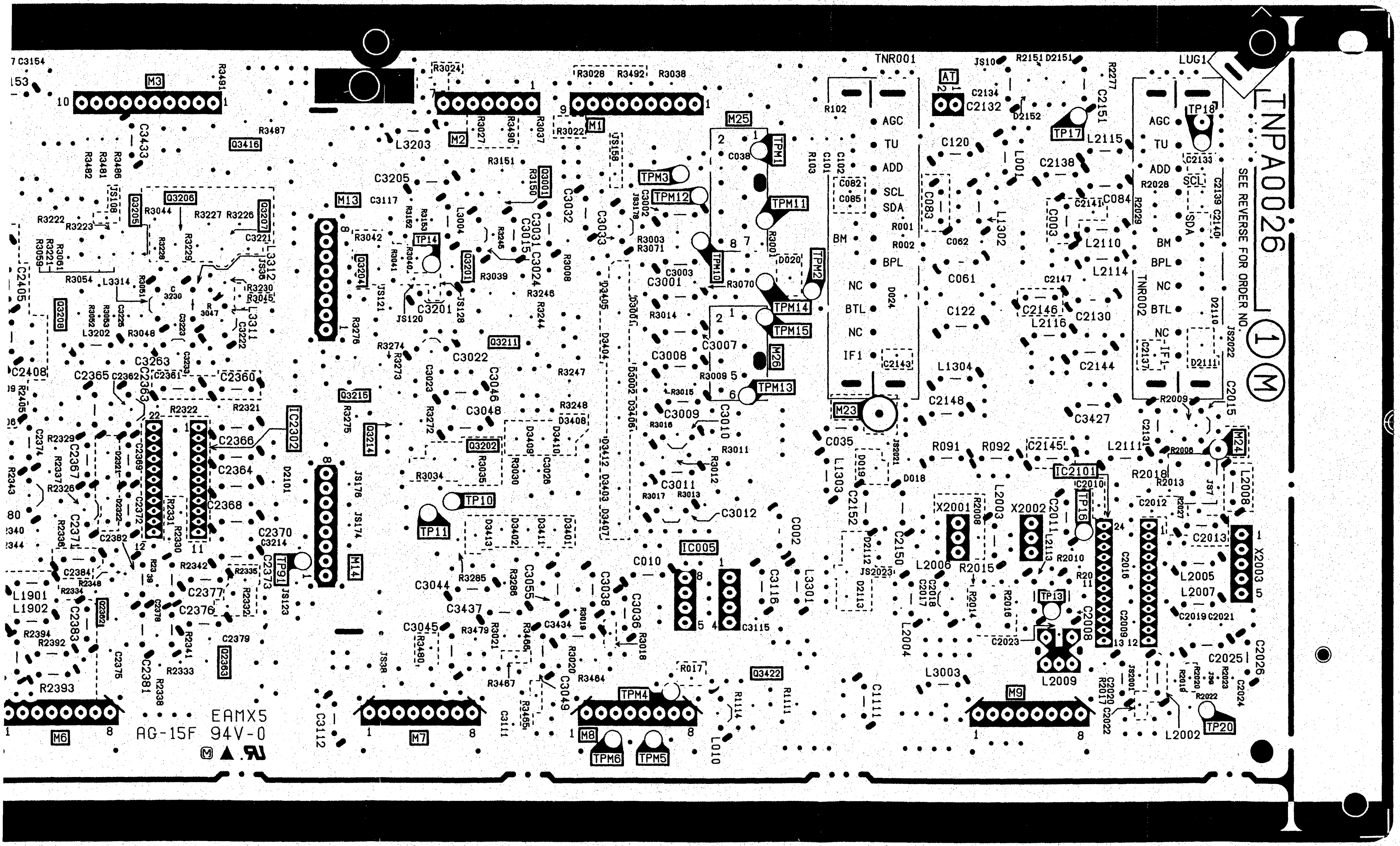
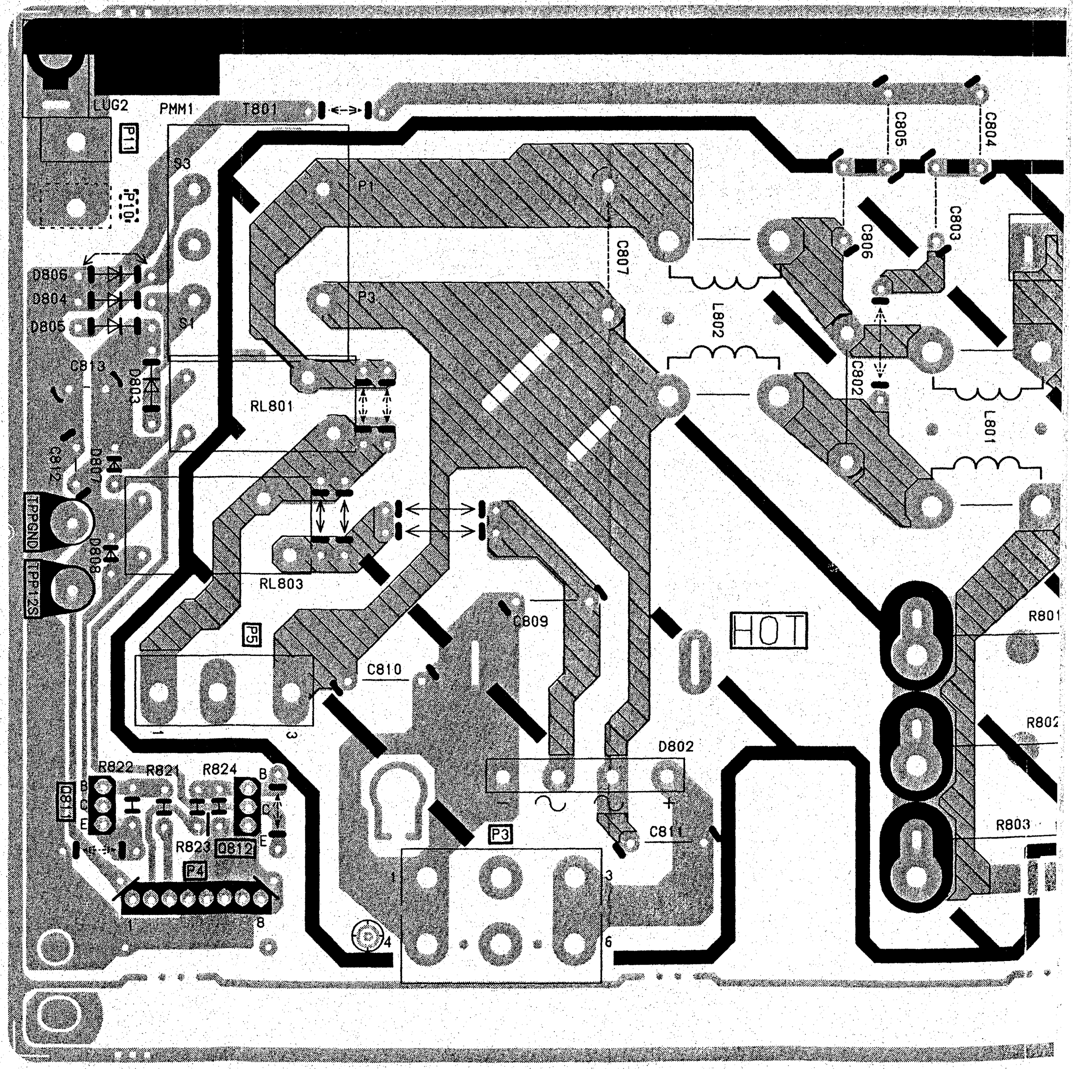
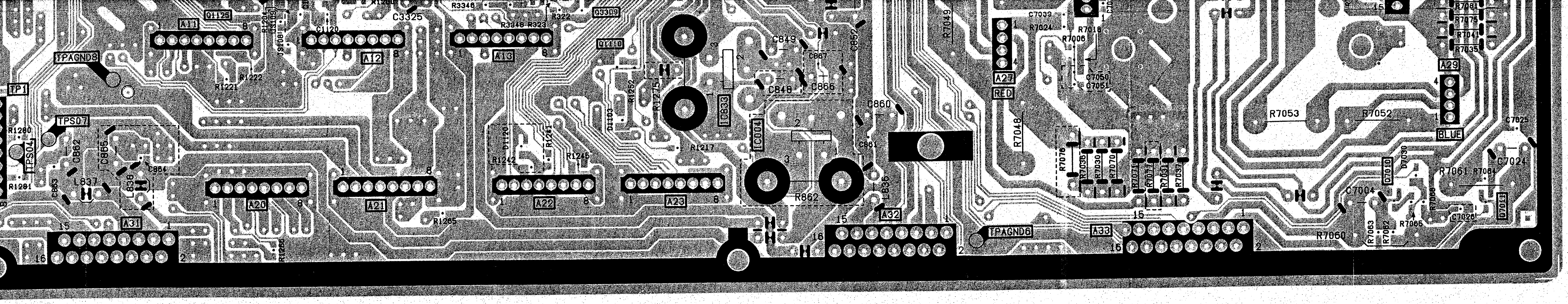
M–Board TNPA0026
All Models

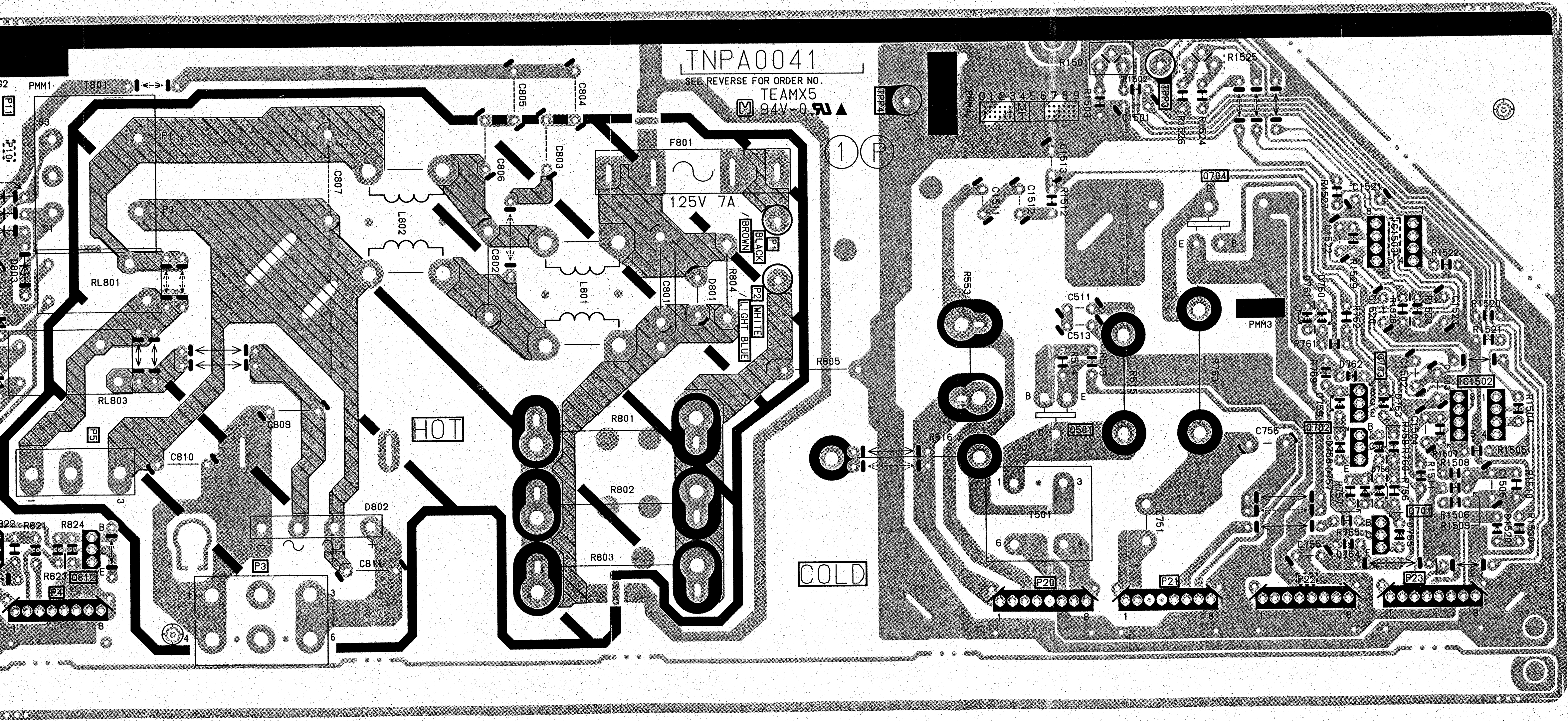

TNPA0026
SEE REVERSE FOR ORDER NO.
①Ⓜ
TNR001
TNR002
EAMX5
AG-15F 94V-0

P-


HOT
T801
RL801
RL803
D802


TPAGND8
TPS07
TPS04
A11
A12
A13
A20
A21
A22
A23
A31
A32
A33
A27
RED
A29
BLUE
TPAGND6
C3325
R7053
R7052
R7060
C7004
R862
C848
C860
C866
R1217
R1265
15
16

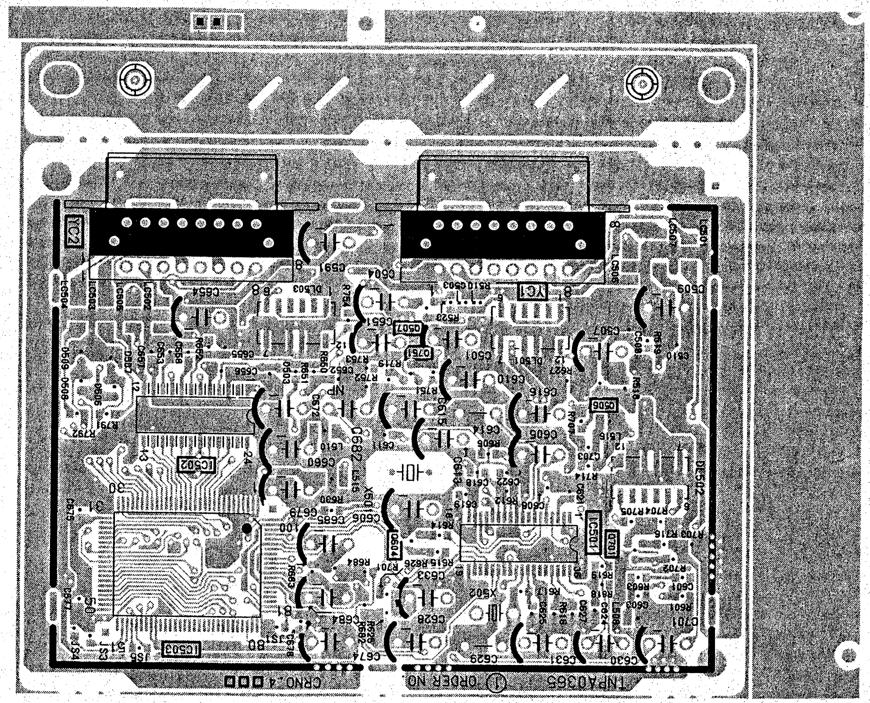
P–Board TNPA0041
All Models


TNPA0041
SEE REVERSE FOR ORDER NO.
TEAMX5
94V-0
①P
PMM1
T801
RL801
RL803
C805
C804
C806
C803
C807
C802
C801
D801
R804
L802
L801
F801
125V 7A
BLACK
BROWN
WHITE
LIGHT BLUE
P1
P2
P3
P5
C809
C810
D802
C811
R801
R802
R803
R805
HOT
COLD
R821
R822
R823
R824
Q812
P4
TPP4
PMM4
PMM3
R1501
R1502
R1503
C1501
TPP3
R1525
R1526
R1524
C1511
C1512
C1513
Q704
C1521
IC1503
R1522
R553
C511
C513
R516
Q501
T501
R763
C756
Q702
Q703
C1502
R1505
R1506
R1508
Q701
D755
D754
R755
R761
R762
D762
R1520
R1521
P20
P21
P22
P23

A B C

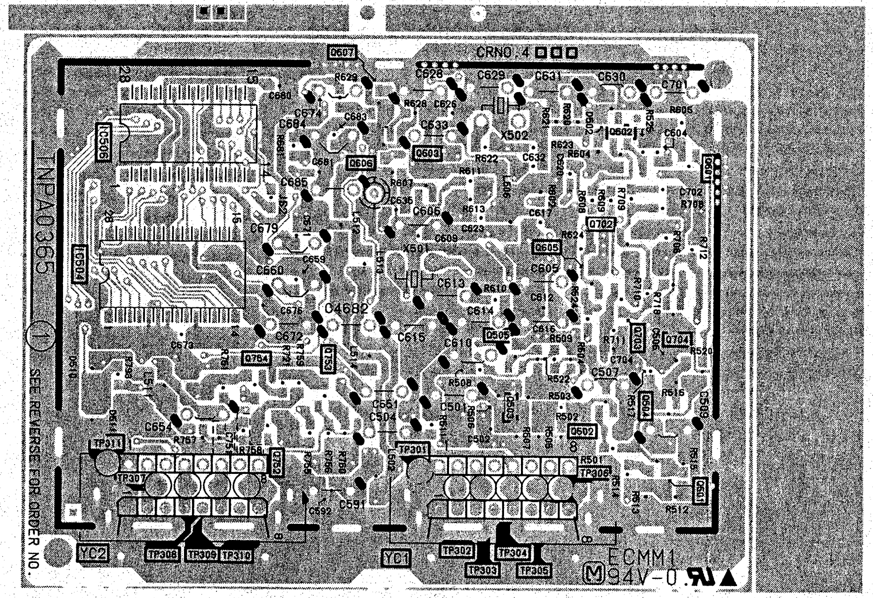
1

YC–Board TNPA0365
All Models
(TOP SIDE)



YC2
YC1
TNPA0365
ORDER NO.
CRNO.4

YC–Board TNPA0365
All Models
(BOTTOM SIDE)

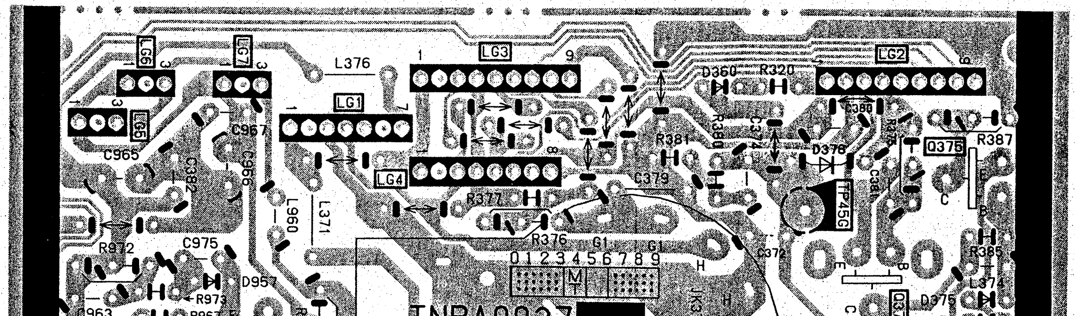


TNPA0365
SEE REVERSE FOR ORDER NO.
CRNO.4
YC2
YC1
COMM1
94V-0

2

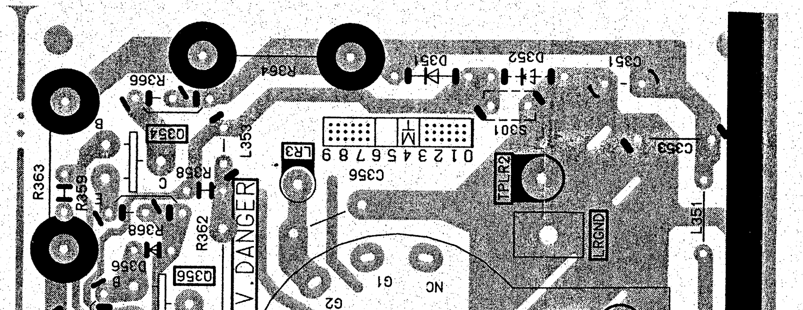
3

LG–Board TNPA0037
All Models



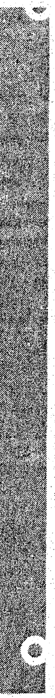
LG6
LG7
LG1
LG3
LG4
LG2
L376
L371
C965
C967
C975
D957
R972
R377
R376
R381
R320
D360
R387
G1
0 1 2 3 4 5 6 7 8 9

LR–Board TNPA0036
All Models

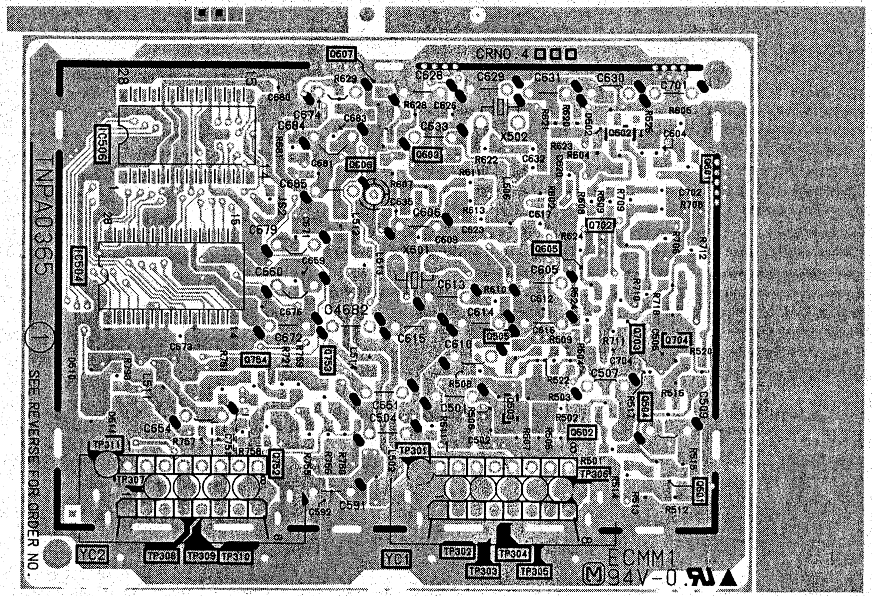


R366
R364
D351
D352
C351
S301
C353
LR3
C356
0 1 2 3 4 5 6 7 8 9
R363
R368
R362
L353
L351
DANGER
G1
G2
NC

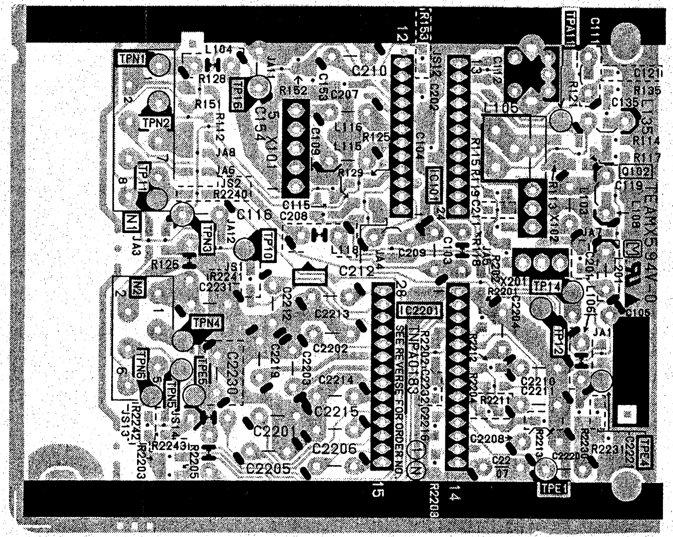
C D E F



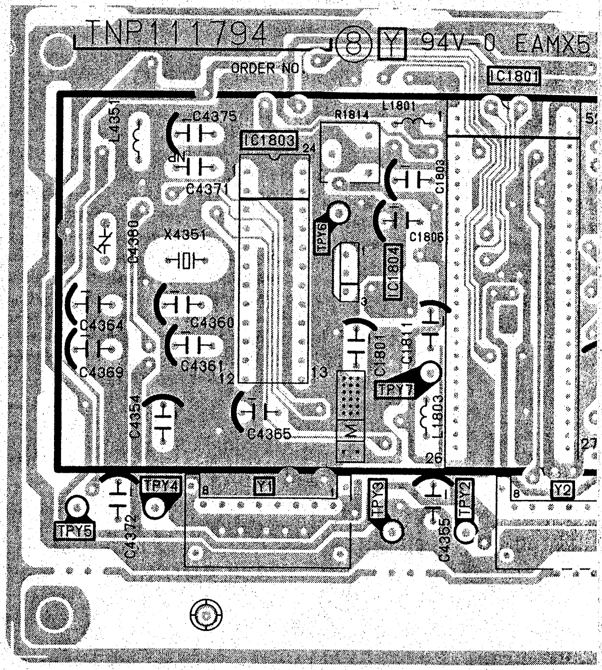
YC–Board TNPA0365
All Models
(BOTTOM SIDE)

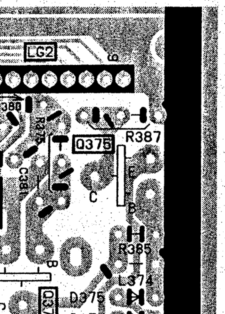

TNPA0365
SEE REVERSE FOR ORDER NO.
CRNO.4
YC2
YC1
ECMM1
94V-0

N–Board TNPA0183
All Models

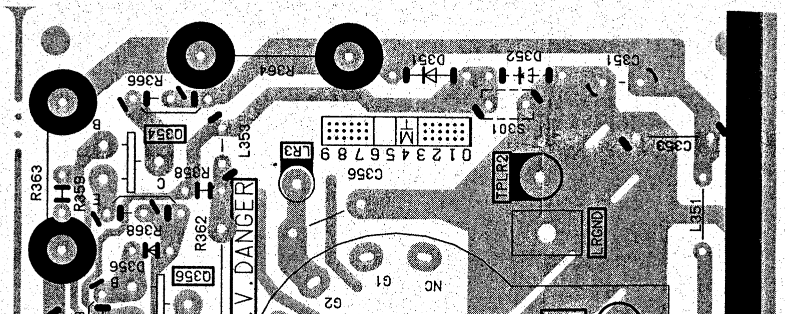

TNPA0183
SEE REVERSE FOR ORDER NO.
TEAMX5 94V-0

Y–Board TNP111794
All Models
(TOP SIDE)

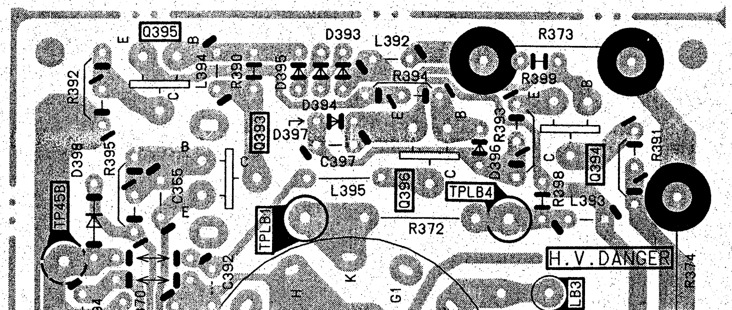

TNP111794
Y
94V-0 EAMX5
ORDER NO.
X4351
TPY5
TPY4
Y1
Y2



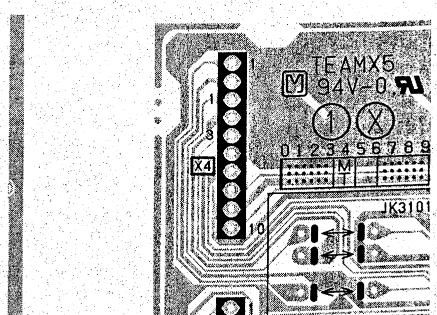
LR–Board TNPA0036
All Models


LR3
LRGND
TPLR2
H.V. DANGER
0123456789
G1
G2
NC

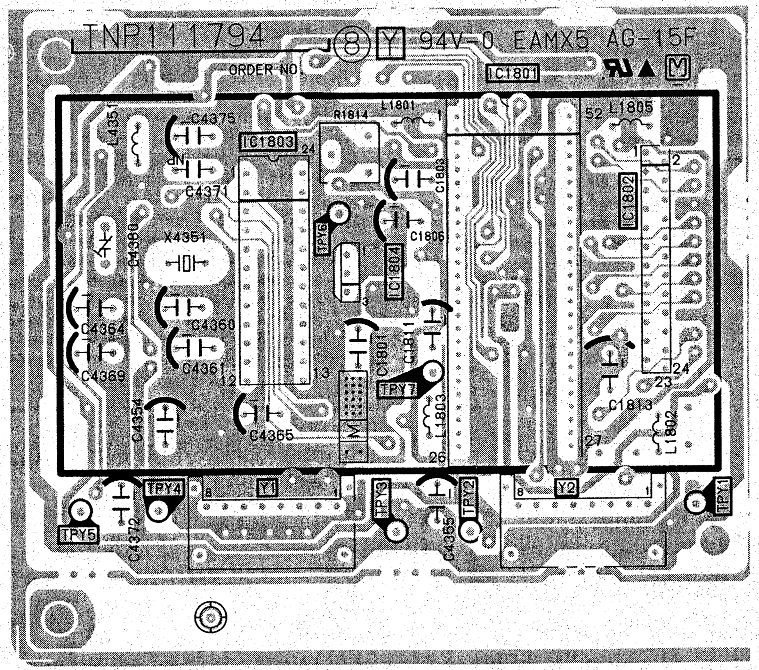
LB–Board TNPA0038
All Models


TPLB4
TPLB1
H.V.DANGER
LB3

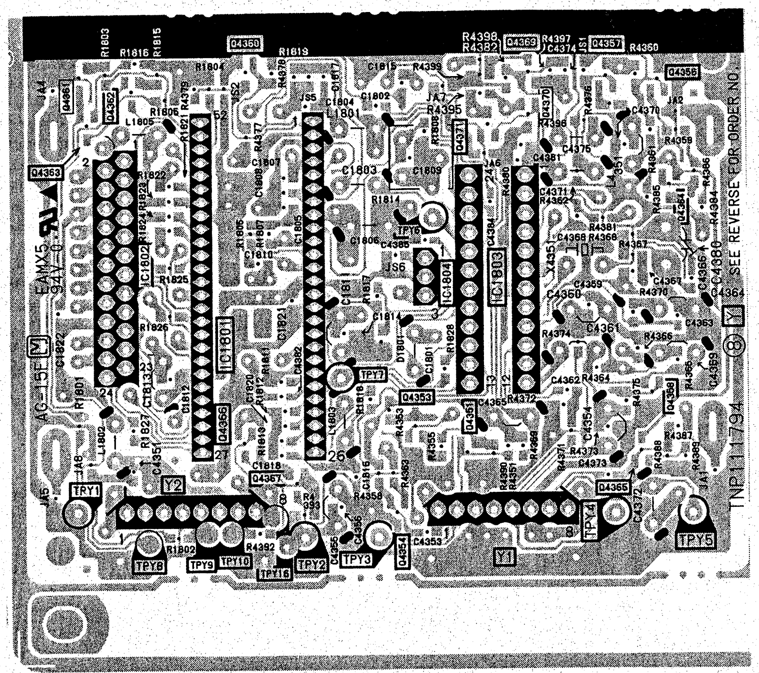
X–Boa
Al


TEAMX5
94V-0
0123456789
X4

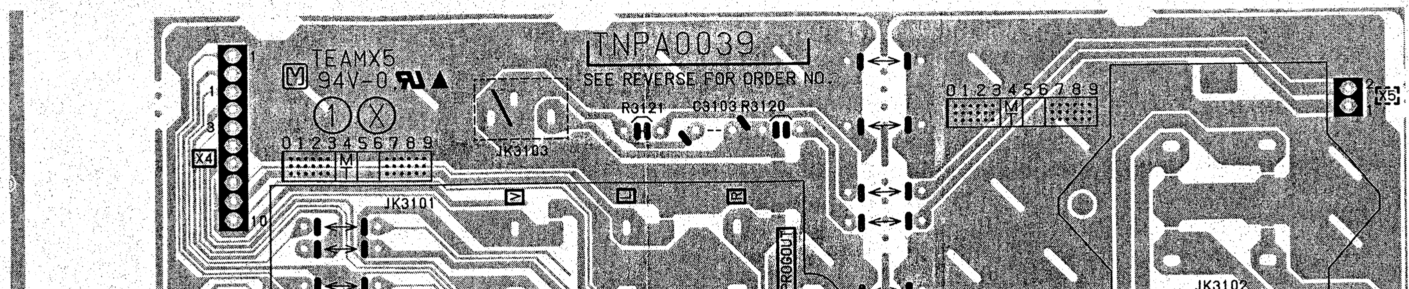
Y–Board TNP111794 All Models (TOP SIDE)


TNP111794
94V-0 EAMX5 AG-15F
ORDER NO.
IC1801
IC1802
IC1803
IC1804
X4351
L1801
L1802
L1803
L1805
C1813
TPY1
TPY2
TPY3
TPY4
TPY5
TPY7
Y1
Y2

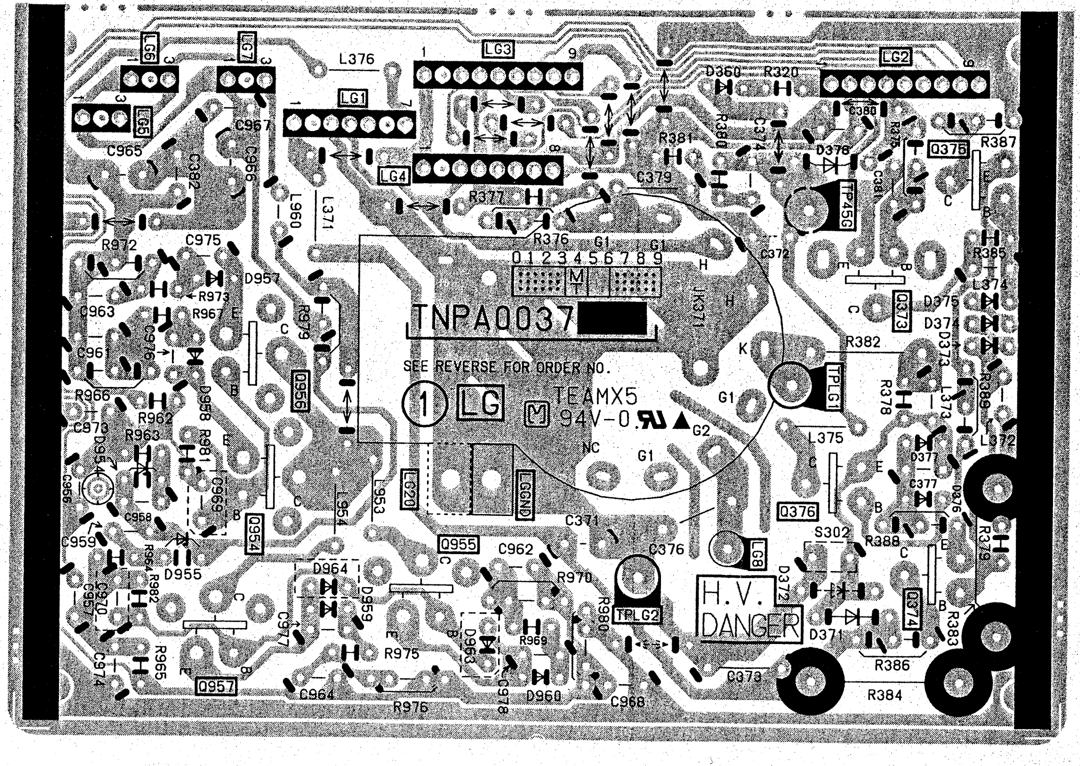
Y–Board TNP111794 All Models (BOTTOM SIDE)


NP111794
SEE REVERSE FOR ORDER NO.
EAMX5
AG-15F
IC1801
IC1802
IC1803
IC1804
TPY1
TPY2
TPY3
TPY5
Y1
Y2

X–Board TNPA0039 All Models


TNPA0039
SEE REVERSE FOR ORDER NO.
EAMX5
94V-0
R3121
C3103
R3120
JK3103
JK3101
JK3102
X4
X5

3


TNPA0037
SEE REVERSE FOR ORDER NO.
① LG
TEAMX5
94V-0
H.V. DANGER
LG1
LG2
LG3
LG4
LG5
LG6
LG7
LG8
TPLG1
TPLG2
TPLGS
LGGND
JK371
S302
Q375
Q376
Q373
Q374
Q955
Q956
Q957
Q954
Q920
L371
L372
L373
L374
L375
L376
L960
R376
R377
R378
R379
R380
R381
R382
R383
R384
R386
R387
R388
R389
R320
R962
R963
R965
R966
R967
R969
R970
R972
R973
R975
R976
C371
C372
C376
C377
C378
C379
C959
C962
C963
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C965
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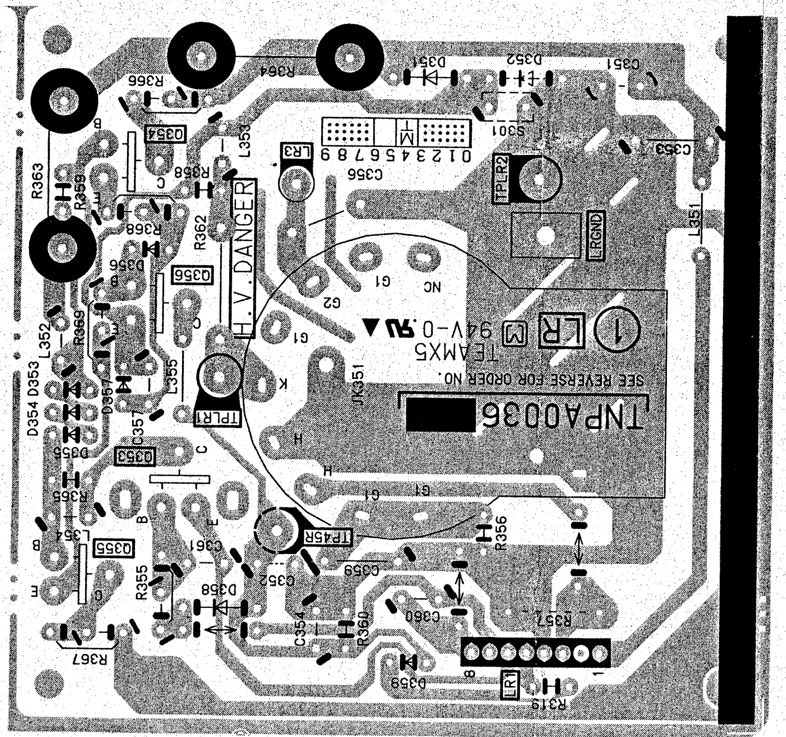
C967
C968
C975
D360
D371
D372
D373
D375
D376
D377
D378
D955
D957
D958
D959
D960
D963
D964
G1
G2
NC
K
H


TNPA0036
SEE REVERSE FOR ORDER NO.
① LR
TEAMX5
94V-0
H.V. DANGER
LR1
LR3
LRGND
TPLR1
TPLR2
TP45R
JK351
S301
Q350
Q354
Q355
Q356
L351
L352
L353
L354
L355
R319
R351
R355
R356
R357
R358
R359
R360
R362
R363
R364
R366
R367
R368
R369
C351
C352
C353
C354
C356
C357
C359
C360
C361
D351
D352
D353
D354
D356
D357
D358
D359
G1
G2
NC
K
H

4

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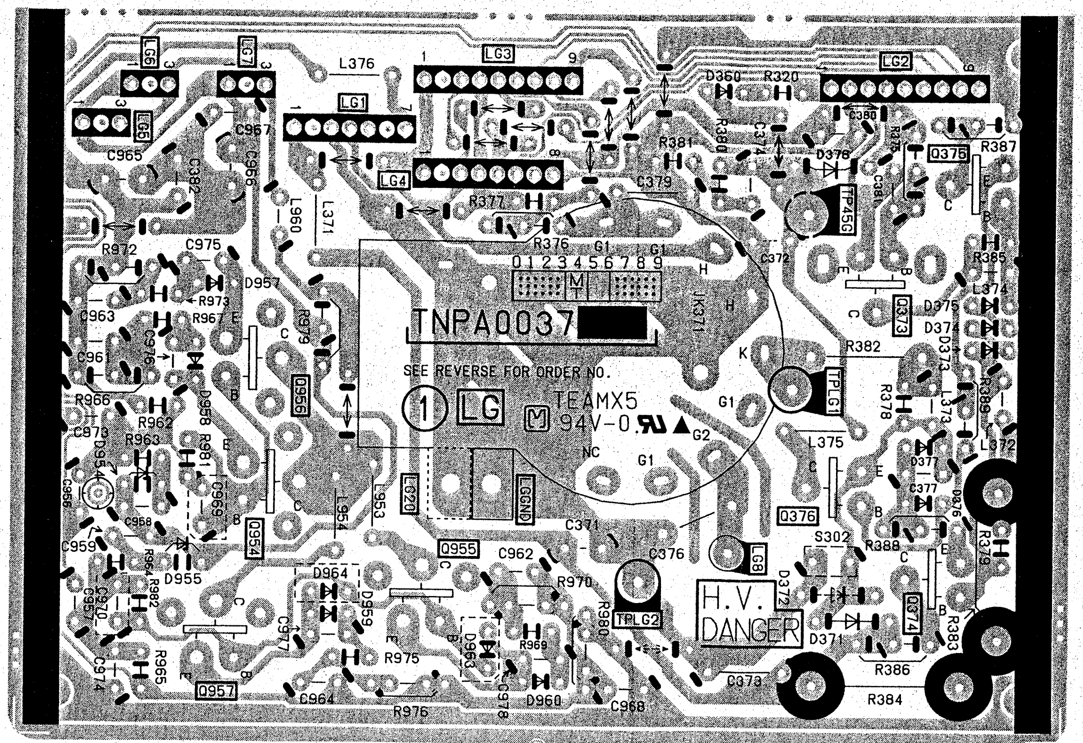
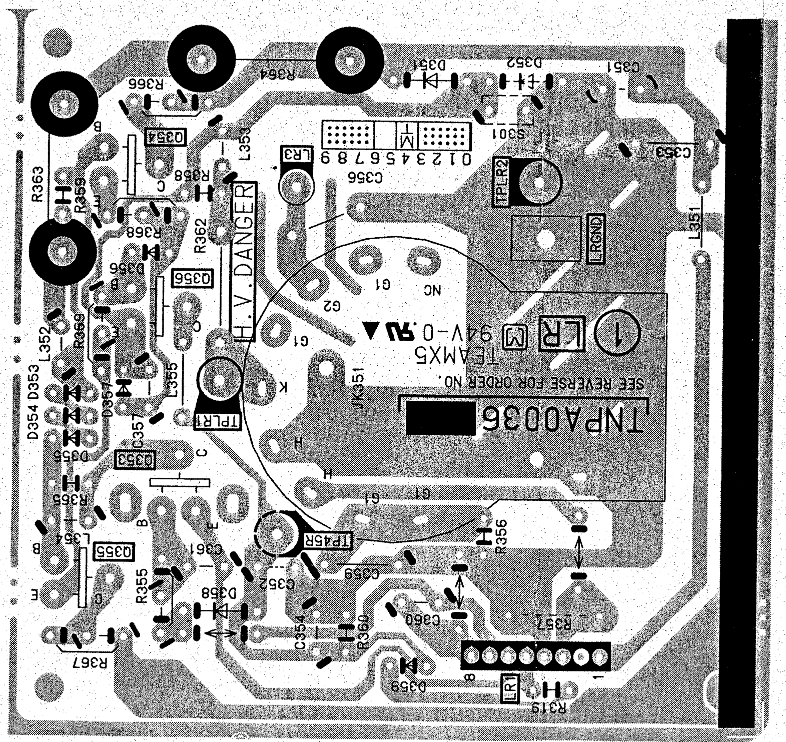
5

3

All Models


TNPA0037[redacted]
SEE REVERSE FOR ORDER NO.
TEAMX5
94V-0
H.V. DANGER
LG1
LG2
LG3
LG4
JK371
TPLG1
TPLG2

All Models

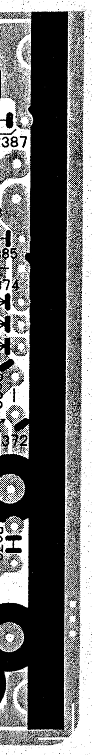

TNPA0036[redacted]
SEE REVERSE FOR ORDER NO.
TEAMX5
94V-0
H.V. DANGER
JK351
TPLR1
TPLR2
TP45R

4

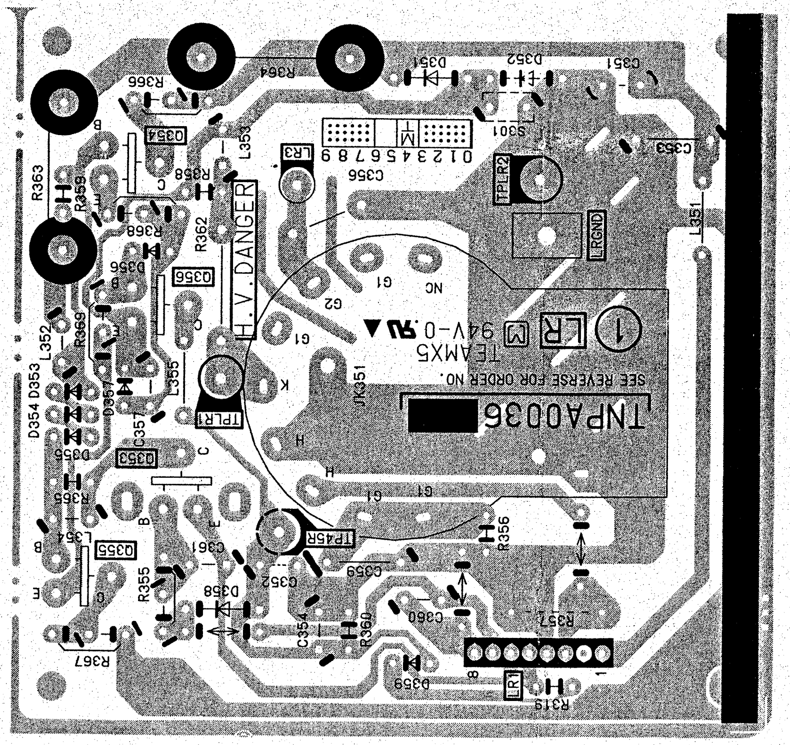
IMPORTANT SAFETY NOTICE

THIS SCHEMATIC DIAGRAM INCORPORATES SPECIAL FEATURES THAT ARE IMPORTANT FOR PROTECTION FROM X-RADIATION, FIRE AND ELECTRICAL SHOCK HAZARDS. WHEN SERVICING IT IS ESSENTIAL THAT ONLY MANUFACTURERS SPECIFIED PARTS BE USED FOR THE CRITICAL COMPONENTS DESIGNATED WITH A ⚠ IN THE SCHEMATIC.

5



All Models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LR
H.V. DANGER
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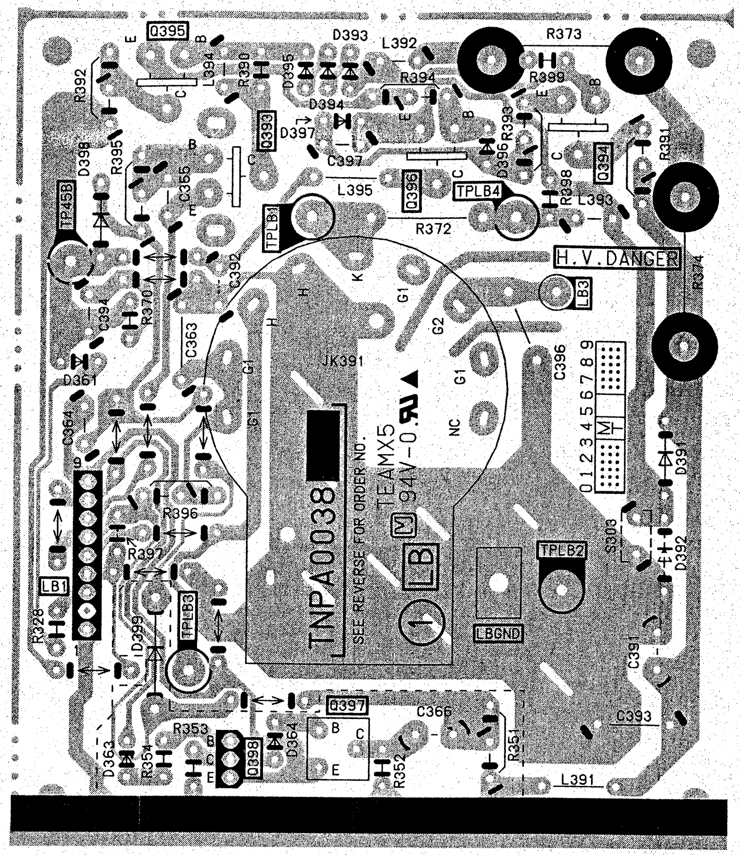
TPLR2
TP45R
LRGND
LR3
JK351
R363
R364
R366
R367
R319
R351
R356
R357
L351
L353
C351
C353
C356
D351
D352
Q354
Q355
Q356

All Models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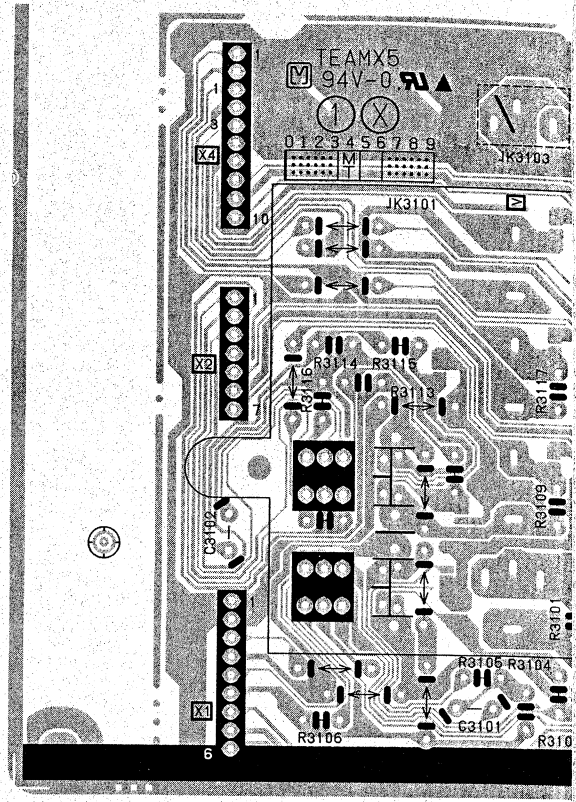
LB
H.V. DANGER
TPLB1
TPLB2
TPLB3
TPLB4
TP45B
LBGND
LB1
LB3
JK391
R372
R373
R374
R391
R392
R399
L391
L392
L393
L395
C391
C393
C396
C397
D391
D392
D393
D394
Q393
Q394
Q395
Q396
Q397
Q398

All Mod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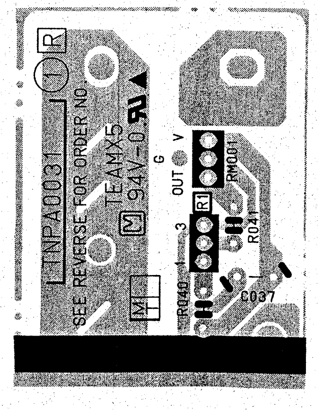
94V-0
JK3101
JK3103
X1
X2
X4
R3104
R3105
R3106
R3109
R3113
R3114
R3115
C3101
C3102

R–Board TNPA0031
All Models


TNPA0031
SEE REVERSE FOR ORDER NO.
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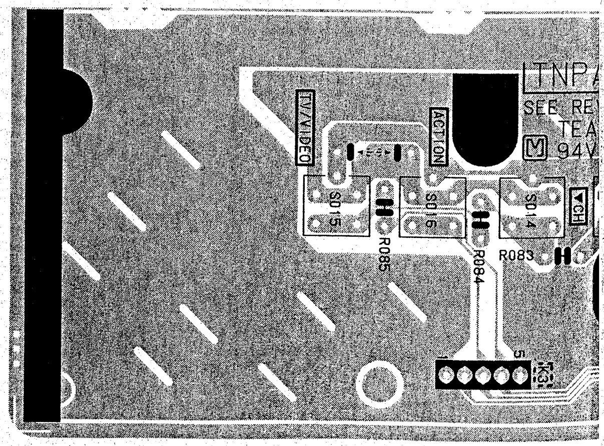
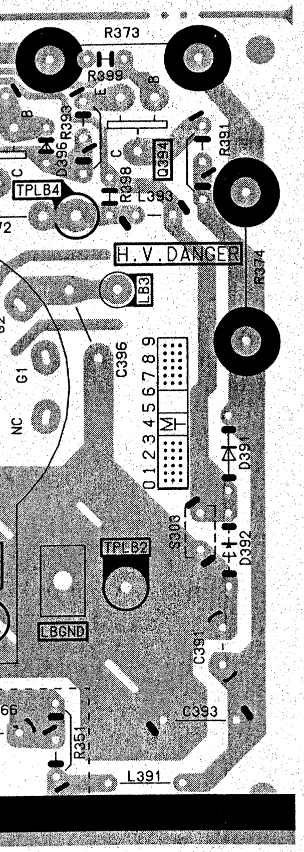
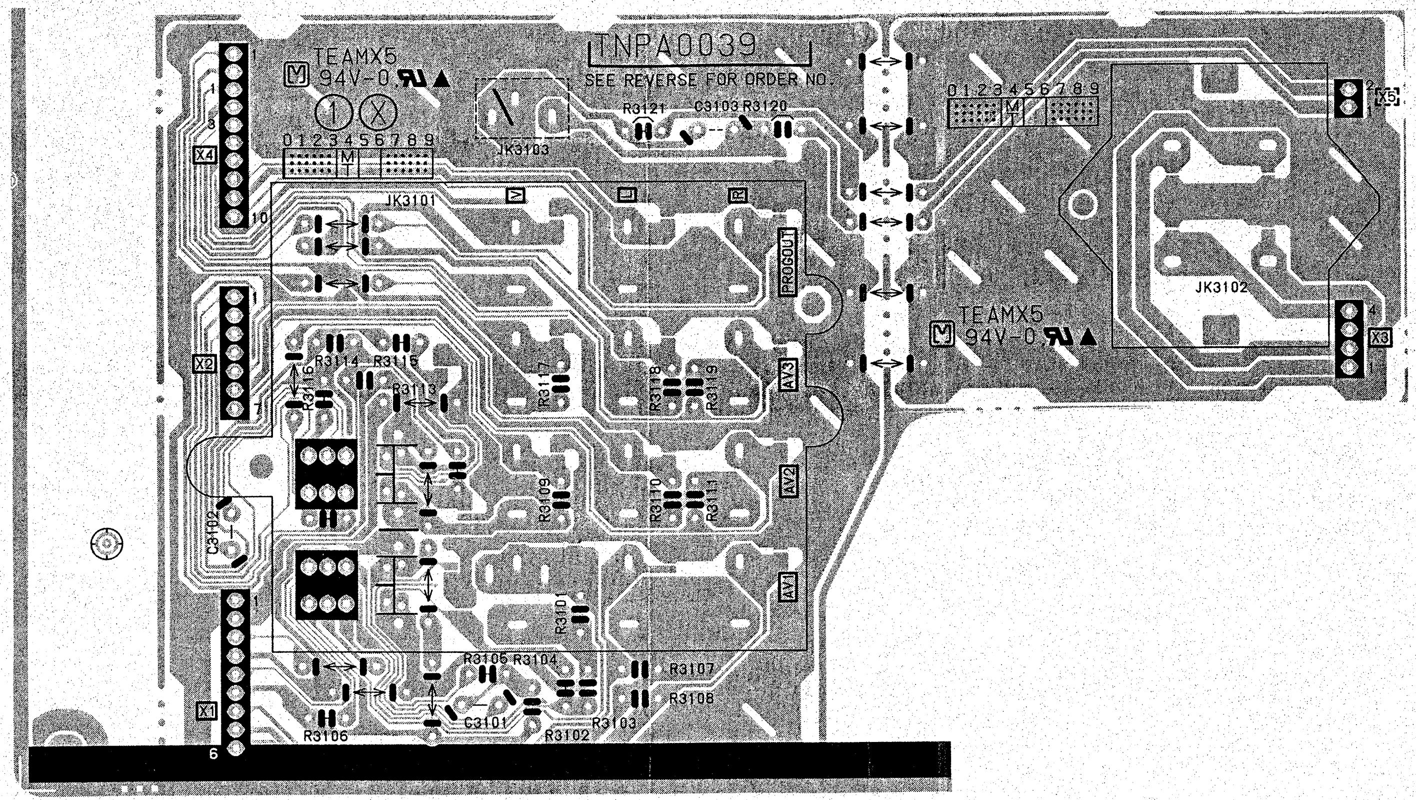
94V-0
R
RM001
R1
G
OUT
V
R040
R041
C037

K–Board TNP
All Mode


TNPA
SEE RE
TEA
94V
ACTION
S015
S016
S014
R083
R084
R085
K3


R373
R399
R391
TPLB4
L393
H.V.DANGER
R374
LB3
C396
D391
D392
TPLB2
LBGND
C393
R351
L391
0 1 2 3 4 5 6 7 8 9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SEE REVERSE FOR ORDER NO.
TEAMX5
94V-0
JK3103
JK3101
JK3102
R3121
C3103
R3120
0 1 2 3 4 5 6 7 8 9
X4
X2
X1
X5
X6
PROGOUT
AV3
AV2
AV1
R3114
R3115
R3116
R3113
R3117
R3118
R3119
R3109
R3110
R3111
R3101
C3102
R3105
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R3107
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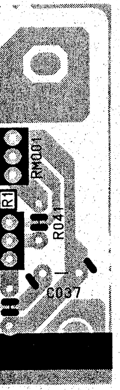
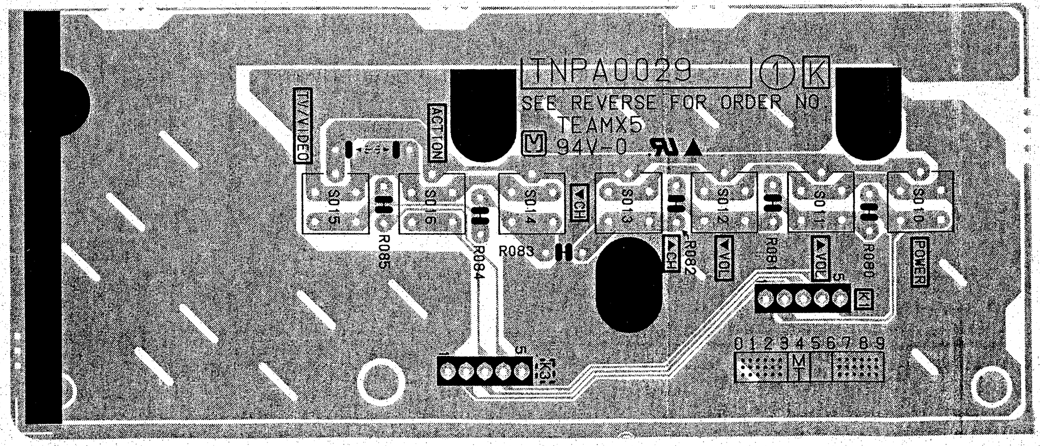
R3103
10
6

NPA0031
dels



K–Board TNPA0029
All Models


TNPA0029
SEE REVERSE FOR ORDER NO.
TEAMX5
94V-0
TV/VIDEO
ACTION
CH
VOL
POWER
SD15
SD16
SD14
SD13
SD12
SD11
SD10
R085
R084
R083
R082
R081
R080
K1
K3
0 1 2 3 4 5 6 7 8 9

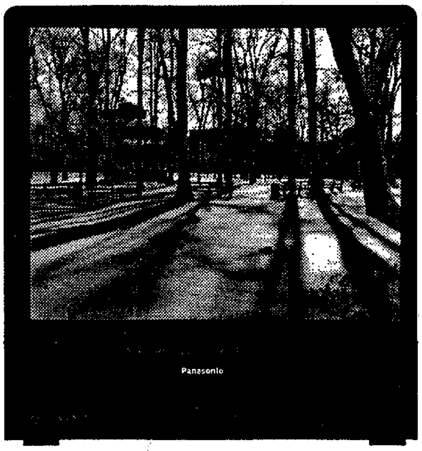
ORDER NO. MTC9705703C1

Service Manual

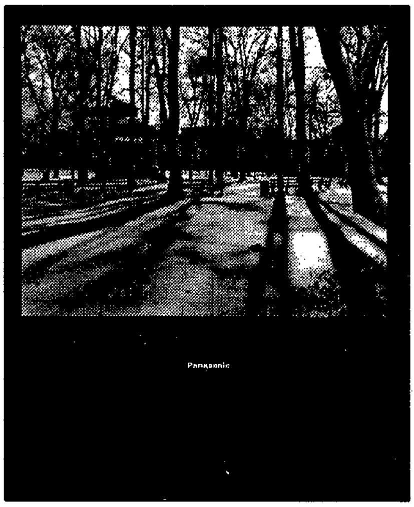
Color Video Projection System

Replacement Parts List

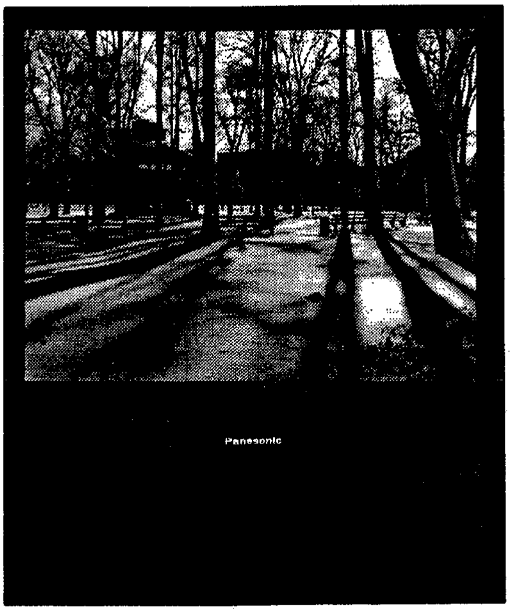
Models	Chassis	Models	Chassis	Models	Chassis
PT-51G50U	AEDP810	PT-51G52V	ALEDP810	PT–61G52V	ALEDP810
PT-51G50CU	AEDP810	PT-51G52CV	ALEDP810	PT–61G52CV	ALEDP810
PT-51G50LU	AEDP810	PT-51G52LV	ALEDP810	PT–61G52VV	ALEDP810
PT-51G50VU	AEDP810	PT-51G52VV	ALEDP810	PT–61G52LV	ALEDP810
PT-51G50PU	AEDP810	PT-51G52PV	ALEDP810		
PT-51G50TU	AEDP810	PT-51G52TV	ALEDP810		
		PT-51G52XV	ALEDP810		



PT–51G50



PT–51G52



PT–61G52

Note: Refer to Technical Guide (P2) for functional descriptions and block diagrams. (MTC9607656S1)

Specifications are subject to change without notice or obligation.
Dimensions and weights are approximate.

The service technician is required to read and follow the “Safety Precautions” and “Important Safety Notice” in this Service Manual.
“WARNING! This Service Manual is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non–technical individuals of potential dangers in attempting to service a product. **Products powered by electricity should be serviced or repaired only by experienced professional technicians.** Any attempt to service or repair the product or products dealt within this Service Manual by anyone else could result in serious injury or death.”

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50 Meadowland Parkway,
Secaucus, New Jersey 07094

REPLACEMENT PARTS LIST

(Models: PT–51G50U/CU/LU/PU/TU/VU, PT–51G52V/CV/LV/PV/TV/VV/XV & PT–61G52V/CV/LV/VV)

Important Safety Notice: Components printed in **BOLD TYPE** have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.

REF. NO.	PART NO.	DESCRIPTION
		CAPACITORS
C002	ECA1CM102	CAP,E 1000UF/16V
C010	ECQB1H473JF	CAP,P .047UF–J–50V
C035	ECEA1EN101U	CAP,E 100UF–25V
C037	ECEA1CFS470	CAP,E 47UF/16V
C038	TCUX1H103ZFN	CAP,C .01UF–Z–50V
C061	ECA1CM102	CAP,E 1000UF/16V
C062	ECUX1H102JCX	CAP,C .001UF–J–50V
C084	ECA0JM101	CAP,E 100UF/6.3V
C101	TCUX1H103ZFN	CAP,C .01UF–Z–50V
C102	TCUX1H103ZFN	CAP,C .01UF–Z–50V
C103	ECEA1CKA330	CAP,E 33UF/16V
C104	TCUX1H103ZFN	CAP,C .01UF–Z–50V
C105	ECEA1HFSR22	CAP,E .22UF/50V
C109	TCUX1H103ZFN	CAP,C .01UF–Z–50V
C111	ECEA1HFSR47	CAP,E .47UF/50V
C112	ECUX1H270JCX	CAP,C 27PF–J–50V
C115	TCUX1H103ZFN	CAP,C .01UF–Z–50V
C116	ECEA1CKA100	CAP,E 10UF/16V
C119	ECUX1H270JCX	CAP,C 27PF–J–50V
C120	ECA1HM4R7	CAP,E 4.7UF/50V
C122	ECA0JM101	CAP,E 100UF/6.3V
C135	ECUX1H270JCX	CAP,C 27PF–J–50V
C153	TCUX1H103ZFN	CAP,C .01UF–Z–50V
C154	ECEA1HKAR22	CAP,E .22UF/50V
C202	TCUX1H103ZFN	CAP,C .01UF–Z–50V
C207	TCUX1H103ZFN	CAP,C .01UF–Z–50V
C208	ECUX1H101JCX	CAP,C 100PF–J–50V
C209	ECEA1HKA010	CAP,E 1.0UF/50V
C210	ECEA1CKA100	CAP,E 10UF/16V
C212	ECUX1H100DCX	CAP,C 10PF–D–50V
C301	ECEA1EN470U	CAP,E 47UF/25V
C302	ECA1HM010	CAP,E 1.0UF/50V
C304	ECEA1HGE010	CAP,E 1UF/50V
C305	ECQB1H103JF	CAP,P .01UF–J–50V
C306	ECA1CM220	CAP,E 22UF/16V
C307	ECQB1H223KF	CAP,P .022UF–K–50V
C308	ECA1HM3R3	CAP,E 3.3UF/50V
C311	TCUX1H103ZFN	CAP,C .01UF–Z–50V
C312	ECA1CM100	CAP,E 10UF/16V
C313	ECA1CM331	CAP,E 330UF/16V
C314	ECA1AM101	CAP,E 100UF/10V
C315	ECA1HM220	CAP,E 22UF/50V
C316	ECA1EM4R7	CAP,E 4.7UF/25V
C317	ECA1EM4R7	CAP,E 4.7UF/25V
C318	TCUX1H103ZFN	CAP,C .01UF–Z–50V
C320	TCUX1H103ZFN	CAP,C .01UF–Z–50V
C323	ECA1HM470	CAP,E 47UF/50V
C351	ECEA2EU100	CAP,E 10UF/250V
C353	ECKD2H103PU	CAP,C .01UF–P–500V
C354	ECA1CM100	CAP,E 10UF/16V
C356	ECKD3D332KB	CAP,C .0033UF–K–2KV
C357	ECQB1H104KF	CAP,P .1UF–K–50V
C359	ECKD3D102KB	CAP,C .001UF–K–2KV
C360	ECA1CM470	CAP,E 47UF/16V
C361	TACCW101T50V	CAP,C 100PF/50V
C363	ECKD3D102KB	CAP,C .001UF–K–2KV
C364	ECA1CM470	CAP,E 47UF/16V
C365	TACCW101T50V	CAP,C 100PF/50V
C366	ECEA2EU100	CAP,E 10UF/250V
C371	ECEA2EU100	CAP,E 10UF/250V
C373	ECKD2H103PU	CAP,C .01UF–P–500V
C374	ECA1CM100	CAP,E 10UF/16V
C376	ECKD3D332KB	CAP,C .0033UF–K–2KV
C377	ECQB1H104KF	CAP,P .1UF–K–50V
C379	ECKD3D102KB	CAP,C .001UF–K–2KV
C380	ECA1CM470	CAP,E 47UF/16V
C381	TACCW101T50V	CAP,C 100PF/50V
C382	ECKD2H103ZU	CAP,C .01UF–Z–500V
C391	ECEA2EU100	CAP,E 10UF/250V
C393	ECKD2H103PU	CAP,C .01UF–P–500V
C394	ECA1CM100	CAP,E 10UF/16V
C396	ECKD3D332KB	CAP,C .0033UF–K–2KV
C397	ECQB1H104KF	CAP,P .1UF–K–50V
C401	ECQB1H333KF	CAP,P .033UF–K–50V
C402	ECSF1VE474	CAP,T .47F–35V
C403	ECSF1VE334	CAP,T .33UF/35V
C405	ECA1CM221	CAP,E 220UF/16V
C407	ECA1CM470	CAP,E 47UF/16V
C408	ECUX1H101JCX	CAP,C 100PF–J–50V
C451	ECA1HM221	CAP,E 220UF/50V
C452	ECQB1224JF	CAP,P .22–100V
C453	ECQB1224JF	CAP,P .22–100V
C455	TACCW332T50V	CAP,C .0033UF/50V
C456	ECA1HMH010B	CAP,E 1.0UF–50V
C457	ECA1CM101	CAP,E 100UF/16V
C458	ECA1CM101	CAP,E 100UF/16V
C460	ECQB1H563JF	CAP,P .056UF–J–50V
C461	ECEA1CN100U	CAP,E 10UF–16V
C462	ECQB1H103JF	CAP,P .01UF–J–50V
C463	ECEA1EGE221	CAP,E 220UF/25V
C465	ECQB1H473JF	CAP,P .047UF–J–50V
C466	ECEA1EGE221	CAP,E 220UF/25V
C467	ECA1HM470	CAP,E 47UF/50V
C468	TACCX103T50V	CAP,C .01UF/50V
C469	ECA1EM470	CAP,E 47UF/25V
C501	ECQB1H182KF	CAP,P .0018UF–K–50V
C502	ECQB1H333KF	CAP,P .033UF–K–50V
C503	ECA1EM4R7	CAP,E 4.7UF/25V
C504	ECUX1H221JCX	CAP,C 220PF–J–50V
C505	ECQB1H563KF	CAP,P .056UF–K–50V
C506	ECA1EM4R7	CAP,E 4.7UF/25V
C510	ECUX1H102KCX	CAP,C .001UF–K–50V
C511	ECKD2H332KB	CAP,C .0033UF–K–500V
C512	ECUX1H271JCX	CAP,C 270PF–J–50V
C513	ECKD2H332KB	CAP,C .0033UF–K–500V
C533	TCUX1H103ZFN	CAP,C .01UF–Z–50V
C549	ECEA2CV470Y	CAP,E 47UF/160V
C552	**ECKD3D152JB**	**CAP,C .0015UF–J–2KV**
C553	**ECKD3D152JB**	**CAP,C .0015UF–J–2KV**
C554	**ECQB1H563JF**	**CAP,P .056UF–J–50V**
C555	**ECWH12H392JC**	**CAP,P .0039UF–J–1.2KV**

REPLACEMENT PARTS LIST

(Models: PT–51G50U/CU/LU/PU/TU/VU, PT–51G52V/CV/LV/PV/TV/VV/XV & PT–61G52V/CV/LV/VV)

Important Safety Notice: Components printed in **BOLD TYPE** have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.

REF. NO.	PART NO.	DESCRIPTION
C556	**ECKD3D391JB**	**CAP,C 390PF–J–2KV**
C557	**ECWH12H103JC**	**CAP,P.01UF–J–1.2KV**
C558	ECQM4273JZ	CAP,P .027UF–J–400V
C559	ECKD3D221JB	CAP,C 220PF–J–2KV
C560	ECEA2CU010	CAP,E 1UF/160V
C561	ECEA1HN4R7U	CAP,E 4.7UF/50V
C562	**ECKD3D391JB**	**CAP,C 390PF–J–2KV**
C565	ECQE12473KF	CAP,C .047F–K–200V
C568	ECEA1HN3R3U	CAP,E 3.3UF–50V
C569	ECEA1EN3R3U	CAP,E 3.3UF/25V
C570	ECKD2H102KB	CAP,C .001UF–K–500V
C571	**ECEA2EU470**	**CAP,E 47UF/250V**
C572	**ECEA2EU470**	**CAP,E 47UF/250V**
C574	TAC7A2D154JC	CAP,P .15UF/200V
C575	TAC7A2D154JC	CAP,P .15UF/200V
C576	TAC7A2D154JC	CAP,P .15UF/200V
C601	ECUX1H103ZFN	CAP,C .01UF–Z–50V
C602	TCUX1H103ZFN	CAP,C .01UF–Z–50V
C605	ECQB1H103KF	CAP,P .01UF–K–50V
C606	ECEA1HN2R2U	CAP,E 2.2UF/50V
C607	TACCS090T50V	CAP,C 9PF/50V
C608	ECEA1HKNR33	CAP,E .33UF/50V
C609	ECEA1HKNR33	CAP,E .33UF/50V
C610	ECA1HMR33	CAP,E .33UF/50V
C611	ECA1HMR33	CAP,E .33UF/50V
C612	ECA1HMR33	CAP,E .33UF/50V
C613	TCUX1H103ZFN	CAP,C .01UF–Z–50V
C614	ECQB1H104KF	CAP,P .1UF–K–50V
C615	ECUX1H330JCX	CAP,C 33PF–J–50V
C616	TCUX1H103ZFN	CAP,C .01UF–Z–50V
C755	ECA1CM221	CAP,E 220UF/16V
C756	ECEA1HW4R7S	CAP,E 4.7UF/50V
C801	**ECQU2A104MN**	**CAP,P.01UF–M–250VAC** ***PT–51G50U PT–51G50CU*** ***PT–51G50LU PT–51G50PU*** ***PT–51G50VU PT–51G52V*** ***PT–51G52CV PT–51G52LV*** ***PT–51G52PV PT–51G52VV*** ***PT–51G52XV PT–61G52V*** ***PT–61G52CV PT–61G52LV*** ***PT–61G52VV***
C801	**ECQU2A334MP**	**CAP,C.33F–M–250V** ***PT–51G50TU PT–51G52TV***
C802	**ECQU2A224MN**	**CAP,P.22UF–M–250VAC** ***PT–51G50TU PT–51G52TV***
C802	**ECQU2A473MN**	**CAP,P.047UF–M–250VAC** ***PT–51G50U PT–51G50CU*** ***PT–51G50LU PT–51G50PU*** ***PT–51G50VU PT–51G52V*** ***PT–51G52CV PT–51G52LV*** ***PT–51G52PV PT–51G52VV*** ***PT–51G52XV PT–61G52V*** ***PT–61G52CV PT–61G52LV*** ***PT–61G52VV***
C803	ECKCNA102MB	CAP,C.001UF–M–125V *PT–51G50TU PT–51G52TV*

REF. NO.	PART NO.	DESCRIPTION
C804	ECKCNA102MB	CAP,C.001UF–M–125V *PT–51G50TU PT–51G52TV*
C805	ECKCNA102MB	CAP,C.001UF–M–125V *PT–51G50TU PT–51G52TV*
C806	ECKCNA102MB	CAP,C.001UF–M–125V *PT–51G50TU PT–51G52TV*
C809	ECKD2H103ZF	CAP,C .01UF–Z–500V
C810	ECKD2H103ZF	CAP,C .01UF–Z–500V
C811	ECKD2H103ZF	CAP,C .01UF–Z–500V
C812	TACCX103T50V	CAP,C .01UF/50V
C813	ECEA1EGE102	CAP,E 1000UF/25V
C815	ECQB1H182JF	CAP,P .0018UF–J–50V
C816	**EC0S2DA681CB**	**CAP,E 680UF–200V**
C817	**EC0S2DA681CB**	**CAP,E 680UF–200V**
C818	ECKD3A392KB	CAP,C 3900PF–K–1KVDC
C819	ECQB1H102JF	CAP,P .001UF–J–50V
C820	ECA1VM470	CAP,E 47UF/35V
C821	ECQB1H102JF	CAP,P .001UF–J–50V
C822	TACCW391T50V	CAP,C 390PF/50V
C823	TACCW221T50V	CAP,C 220PF/50V
C824	EEUFA1H820B	CAP,E 82UF–50V
C825	ECQB1H473JF	CAP,P .047UF–J–50V
C826	ECQB1H223JF	CAP,P .022UF–J–50V
C827	ECQB1H104JF	CAP,P .1UF–J–50V
C828	ECQB1H473JF	CAP,P .047UF–J–50V
C829	**ECKCNS472ME**	**CAP,C.0047UF–M–125VAC**
C830	**ECKCNS472ME**	**CAP,C.0047UF–M–125VAC**
C831	ECKD3D681KB	CAP,C 680PF–K–2KV
C832	**EC0S2CA471B4**	**CAP,E 470UF–160V**
C833	ECKD3A471KB	CAP,C 470PF–K–1KV
C834	EEUFA1C182E	CAP,E 1800UF–16V
C835	ECKD3A471KB	CAP,C 470PF–K–1KV
C836	EEUFA1C182E	CAP,E 1800UF–16V
C837	ECKD3A471KB	CAP,C 470PF–K–1KV
C838	ECEA1VGE332	CAP,E 3300UF/35V
C839	ECKD3A471KB	CAP,C 470PF–K–1KV
C840	ECEA1VGE332	CAP,E 3300UF/35V
C841	ECKD3A471KB	CAP,C 470PF–K–1KV
C842	**ECEA1HFS102**	**CAP,E 1000UF/50V**
C843	ECA1HM010	CAP,E 1.0UF/50V
C844	ECEA1CGE101	CAP,E 100UF/16V
C845	ECEA1CGE101	CAP,E 100UF/16V
C849	ECA1CMH101B	CAP,E 100UF–16V
C850	ECA1CM101	CAP,E 100UF/16V
C851	ECA1CM101	CAP,E 100UF/16V
C852	ECA1CM101	CAP,E 100UF/16V
C853	ECA1CM101	CAP,E 100UF/16V
C854	ECA1EM470	CAP,E 47UF/25V
C855	ECA1CM101	CAP,E 100UF/16V
C856	ECA1HM100	CAP,E 10UF/50V
C857	ECA1CM101	CAP,E 100UF/16V
C858	ECA1HM100	CAP,E 10UF/50V
C859	TACCX103T50V	CAP,C .01UF/50V
C860	ECA1CM101	CAP,E 100UF/16V
C861	TCUX1H103ZFN	CAP,C .01UF–Z–50V
C862	ECA1CM331	CAP,E 330UF/16V

REPLACEMENT PARTS LIST

(Models: PT–51G50U/CU/LU/PU/TU/VU, PT–51G52V/CV/LV/PV/TV/VV/XV & PT–61G52V/CV/LV/VV)

Important Safety Notice: Components printed in **BOLD TYPE** have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.

REF. NO.	PART NO.	DESCRIPTION
C863	TCUX1H103ZFN	CAP,C.01UF–Z–50V
C872	ECQB1H104JF	CAP,P.1UF–J–50V
C873	ECKD3D681KB	CAP,C680PF–K–2KV
C875	ECQB1H103JF	CAP,P.01UF–J–50V
C941	ECA1CM100	CAP,E10UF/16V
C942	TACCX473T50V	CAP,C.047UF–Z–50V
C943	ECCF1H121JP	CAP,C120PF–J–50V
C944	TACCX103T50V	CAP,C.01UF/50V
C953	TACCX103T50V	CAP,C.01UF/50V
C954	ECA1EM101	CAP,E100UF/25V
C955	ECA1VM221	CAP,E220UF/35V
C956	ECQM2103JZ	CAP,P.01UF–J–200V
C957	TACCX103T50V	CAP,C.01UF/50V
C958	TACCX102T50V	CAP,C.1UF/50V
C959	TACCW102T50V	CAP,C.001UF/50V
C961	ECA0JM101	CAP,E100UF/6.3V
C962	ECA0JM101	CAP,E100UF/6.3V
C963	ECA0JM101	CAP,E100UF/6.3V
C964	ECA0JM101	CAP,E100UF/6.3V
C965	ECA2CM100	CAP,E10UF–160V
C966	ECA2CM100	CAP,E10UF–160V
C967	ECKD2H472MD	CAP,C.0047UF–M–500V
C968	ECA0JM101	CAP,E100UF/6.3V
C973	ECCD2H151J	CAP,C150PF–J–500V
C974	ECCD2H151J	CAP,C150PF–J–500V
C975	TACCW101T50V	CAP,C100PF/50V
C976	TACCW101T50V	CAP,C100PF/50V
C977	TACCW101T50V	CAP,C100PF/50V
C978	TACCW101T50V	CAP,C100PF/50V
C1100	ECA1CM101	CAP,E100UF/16V
C1101	ECEA1CN220U	CAP,E22UF–16V
C1102	ECUX1H101JCX	CAP,C100PF–J–50V
C1103	ECUX1H101JCX	CAP,C100PF–J–50V
C1111	ECA1HM010	CAP,E1.0UF/50V
C1114	ECUX1H101JCX	CAP,C100PF–J–50V
C1115	TCUX1H103ZFN	CAP,C.01UF–Z–50V
C1116	ECA1AM101	CAP,E100UF/10V
C1117	ECA1AM101	CAP,E100UF/10V
C1118	TCUX1H103ZFN	CAP,C.01UF–Z–50V
C1119	ECQB1H223JF	CAP,P.022UF–J–50V
C1120	ECUX1H392KBX	CAP,C.0039UF–K–50V
C1121	ECUX1H821JCX	CAP,C820PF–J–50V
C1122	ECUX1H561JCX	CAP,C560PF–J–50V
C1124	ECA1EM4R7	CAP,E4.7UF/25V
C1125	ECUX1H101JCX	CAP,C100PF–J–50V
C1126	ECUX1H330JCX	CAP,C33PF–J–50V
C1127	ECUX1H330JCX	CAP,C33PF–J–50V
C1128	ECA1AM222	CAP,E2200UF/10V
C1129	ECQB1H104KF	CAP,P.1UF–K–50V
C1130	ECUX1H101JCX	CAP,C100PF–J–50V
C1132	ECA1AM101	CAP,E100UF/10V
C1133	ECUX1H101JCX	CAP,C100PF–J–50V
C1134	ECUX1H101JCX	CAP,C100PF–J–50V
C1135	ECA1AM101	CAP,E100UF/10V
C1136	ECUX1H101JCX	CAP,C100PF–J–50V
C1137	ECA1AM101	CAP,E100UF/10V
C1140	TCUX1H103ZFN	CAP,C.01UF–Z–50V
C1141	ECA1CM100	CAP,E10UF/16V
C1142	ECA1CM100	CAP,E10UF/16V
C1143	ECEA1CN100U	CAP,E10UF–16V
C1144	ECA1EM100	CAP,E10UF/25V
C1145	ECA1CM100	CAP,E10UF/16V
C1147	ECA1CM100	CAP,E10UF/16V
C1148	TCUX1H103ZFN	CAP,C.01UF–Z–50V
C1149	TCUX1H103ZFN	CAP,C.01UF–Z–50V
C1151	TCUX1H103ZFN	CAP,C.01UF–Z–50V
C1153	TACCW121T50V	CAP,C120PF/50V
C1501	TACCW101T50V	CAP,C100PF/50V
C1502	ECA1CM470	CAP,E47UF/16V
C1503	TACCX103T50V	CAP,C.01UF/50V
C1504	ECQB1H102JF	CAP,P.001UF–J–50V
C1506	ECA1CM101	CAP,E100UF/16V
C1551	ECEA1EN101U	CAP,E100UF–25V
C1552	ECA1CM101	CAP,E100UF/16V
C1553	ECQB1H123JF	CAP,P.012UF–J–50V
C1571	ECKD2H181KB	CAP,C180PF–K–500V
C1581	TACCW102T50V	CAP,C.001UF/50V
C1582	ECA1HM470	CAP,E47UF/50V
C1583	ECA1HM220	CAP,E22UF/50V
C1584	ECA1VM470	CAP,E47UF/35V
C1585	ECA1CM221	CAP,E220UF/16V
C1586	TACCX103T50V	CAP,C.01UF/50V
C1587	ECA1HM4R7	CAP,E4.7UF/50V
C1588	ECA1EM470	CAP,E47UF/25V
C1791	ECA1HM100	CAP,E10UF/50V
C1795	ECUX1H680JCX	CAP,C68PF–J–50V
C1796	TCUX1H103ZFN	CAP,C.01UF–Z–50V
C1797	ECA1HM220	CAP,E22UF/50V
C1801	ECEA1HKA010	CAP,E1.0UF/50V
C1802	TCUX1H103ZFN	CAP,C.01UF–Z–50V
C1803	ECEA1HKA010	CAP,E1.0UF/50V
C1805	TCUX1H103ZFN	CAP,C.01UF–Z–50V
C1806	ECEA1CKA100	CAP,E10UF/16V
C1807	TCUX1H103ZFN	CAP,C.01UF–Z–50V
C1808	TCUX1H103ZFN	CAP,C.01UF–Z–50V
C1809	TCUX1H103ZFN	CAP,C.01UF–Z–50V
C1810	TCUX1H103ZFN	CAP,C.01UF–Z–50V
C1811	ECEA1EKA4R7	CAP,E4.7UF/25V
C1812	TCUX1H103ZFN	CAP,C.01UF–Z–50V
C1813	ECEA0JKA331	CAP,E330UF/6.3V
C1814	TCUX1H103ZFN	CAP,C.01UF–Z–50V
C1816	ECUX1H681KBX	CAP,C680PF–K–50V
C1820	ECUX1H390JCX	CAP,C39PF–J–50V
C1901	ECEA1HN100U	CAP,E10UF/50V
C1902	ECQB1H183JF	CAP,P.018UF–J–50V
C1903	ECA1CM101	CAP,E100UF/16V
C1904	ECA1CM101	CAP,E100UF/16V
C1905	ECEA1HN010U	CAP,E1UF/50V
C1906	TACCW821T50V	CAP,C820PF/50V
C1907	ECQB1H104JF	CAP,P.1UF–J–50V
C1908	ECA1HM010	CAP,E1.0UF/50V
C1909	TACCW102T50V	CAP,C.001UF/50V

REPLACEMENT PARTS LIST

(Models: PT–51G50U/CU/LU/PU/TU/VU, PT–51G52V/CV/LV/PV/TV/VV/XV & PT–61G52V/CV/LV/VV)

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REF. NO.	PART NO.	DESCRIPTION
C1910	ECQB1H104JF	CAP,P .1UF–J–50V
C1911	ECEA1HN010U	CAP,E 1UF/50V
C1912	ECEA1HN010U	CAP,E 1UF/50V
C1913	TACCX103T50V	CAP,C .01UF/50V
C1914	ECA1CM220	CAP,E 22UF/16V
C1915	TACCX103T50V	CAP,C .01UF/50V
C1916	ECA1HM470	CAP,E 47UF/50V
C1917	ECEA1HN010U	CAP,E 1UF/50V
C1918	ECEA1CN100U	CAP,E 10UF–16V
C1922	ECEA1HN010U	CAP,E 1UF/50V
C2008	ECA1AM330	CAP,E 33UF/10V
C2009	TCUX1H103ZFN	CAP,C .01UF–Z–50V
C2011	ECEA1HFSR22	CAP,E .22UF/50V
C2015	ECA1HM100	CAP,E 10UF/50V
C2016	TCUX1H103ZFN	CAP,C .01UF–Z–50V
C2017	ECUX1H270JCX	CAP,C 27PF–J–50V
C2018	ECUX1H270JCX	CAP,C 27PF–J–50V
C2019	TCUX1H103ZFN	CAP,C .01UF–Z–50V
C2020	ECEA1HFSR47	CAP,E .47UF/50V
C2021	TCUX1H103ZFN	CAP,C .01UF–Z–50V
C2023	ECUX1H270JCX	CAP,C 27PF–J–50V
C2024	TCUX1H103ZFN	CAP,C .01UF–Z–50V
C2025	ECA1CM100	CAP,E 10UF/16V
C2026	ECA1HMR22	CAP,E .22UF/50V
C2130	ECA1CM102	CAP,E 1000UF/16V
C2131	ECA1CM471	CAP,E 470UF/16V
C2138	ECA1CM101	CAP,E 100UF/16V
C2144	ECA0JM101	CAP,E 100UF/6.3V
C2147	ECUX1H101JCX	CAP,C 100PF–J–50V
C2148	ECA1HMR47	CAP,E .47UF/50V
C2150	ECA1HM470	CAP,E 47UF/50V
C2152	ECQB1H104JF	CAP,P .1UF–J–50V
C2201	AP335K016CAE	CAP,T 3.3UF/16V
C2202	ECEA1EKA4R7	CAP,E 4.7UF/25V
C2203	ECEA1HKA010	CAP,E 1.0UF/50V
C2204	ECEA1EKA4R7	CAP,E 4.7UF/25V
C2205	ECEA1EKA4R7	CAP,E 4.7UF/25V
C2206	ECEA1EKA4R7	CAP,E 4.7UF/25V
C2207	ECA1CM100	CAP,E 10UF/16V
C2208	ECEA1EKA4R7	CAP,E 4.7UF/25V
C2210	ECEA1HKAR33	CAP,E .33UF/50V
C2211	ECA1HM0R1	CAP,E 0.1UF/50V
C2212	ECA1HM2R2	CAP,E 2.2UF/50V
C2213	ECA1CM100	CAP,E 10UF/16V
C2214	ECQB1H104JF	CAP,P .1UF–J–50V
C2215	ECQB1H223JF	CAP,P .022UF–J–50V
C2216	ECUX1H332KBX	CAP,C .0033UF–K–50V
C2219	AP106K016CAE	CAP,T 10UF/16V
C2220	ECEA1EKA4R7	CAP,E 4.7UF/25V
C2221	ECUX1H101JCX	CAP,C 100PF–J–50V
C2231	ECEA1CKA101	CAP,E 100UF/16V
C2232	TCUX1H103ZFN	CAP,C .01UF–Z–50V
C2301	ECA1VM101	CAP,E 100UF/35V
C2302	ECEA1HN010U	CAP,E 1UF/50V
C2303	ECUX1H821KBX	CAP,C 820PF–K–50V
C2304	ECUX1H821KBX	CAP,C 820PF–K–50V
C2305	ECEA1HN010U	CAP,E 1UF/50V
C2306	ECA1VM101	CAP,E 100UF/35V
C2307	ECA1HM102	CAP,E 1000UF/50V
C2309	ECQB1H104KF	CAP,P .1UF–K–50V
C2310	ECQB1H104KF	CAP,P .1UF–K–50V
C2312	ECA1HM102	CAP,E 1000UF/50V
C2313	ECA1HM102	CAP,E 1000UF/50V
C2314	ECA1HM220	CAP,E 22UF/50V
C2352	ECA1HM100	CAP,E 10UF/50V
C2353	ECA1HM100	CAP,E 10UF/50V
C2354	ECA1HM010	CAP,E 1.0UF/50V
C2355	ECA1HM010	CAP,E 1.0UF/50V
C2356	ECA1HM010	CAP,E 1.0UF/50V
C2357	ECA1HM010	CAP,E 1.0UF/50V
C2424	TCUX1H103ZFN	CAP,C .01UF–Z–50V
C2426	ECUX1H151JCX	CAP,C 150PF–J–50V
C2428	ECEA1HN010U	CAP,E 1UF/50V
C2429	ECA1HM010	CAP,E 1.0UF/50V
C2430	ECA1HM010	CAP,E 1.0UF/50V
C2435	ECEA1HN010U	CAP,E 1UF/50V
C2436	ECEA1HN010U	CAP,E 1UF/50V
C2438	ECEA1HN010U	CAP,E 1UF/50V
C2439	ECEA1HN010U	CAP,E 1UF/50V
C2440	ECA1CM101	CAP,E 100UF/16V
C2441	ECA1CM102	CAP,E 1000UF/16V
C2442	ECA1CM471	CAP,E 470UF/16V
C2443	TCUX1H103KBN	CAP,C .01UF–K–50V
C2444	ECEA1HN010U	CAP,E 1UF/50V
C2445	ECEA1HN010U	CAP,E 1UF/50V
C2446	ECEA1HN010U	CAP,E 1UF/50V
C2447	ECA1CM102	CAP,E 1000UF/16V
C2448	ECA1HM4R7	CAP,E 4.7UF/50V
C2449	ECEA1HN010U	CAP,E 1UF/50V
C2450	ECEA1HN010U	CAP,E 1UF/50V
C2451	ECEA1HN010U	CAP,E 1UF/50V
C2452	ECA1HM4R7	CAP,E 4.7UF/50V
C2453	ECQB1H183JF	CAP,P .018UF–J–50V
C2454	ECUX1H101JCX	CAP,C 100PF–J–50V
C2455	ECQB1H473JF	CAP,P .047UF–J–50V
C2456	ECQB1H103JF	CAP,P .01UF–J–50V
C2459	ECUX1H101JCX	CAP,C 100PF–J–50V
C2460	ECQB1H223JF	CAP,P .022UF–J–50V
C2461	ECUX1H101JCX	CAP,C 100PF–J–50V
C2462	ECUX1H101JCX	CAP,C 100PF–J–50V
C2463	TCUX1H103KBN	CAP,C .01UF–K–50V
C2494	TACCW102T50V	CAP,C .001UF/50V
C2495	TACCX103T50V	CAP,C .01UF/50V
C2496	TACCX103T50V	CAP,C .01UF/50V
C2497	ECA1CM101	CAP,E 100UF/16V
C2498	ECA1CM101	CAP,E 100UF/16V
C2499	ECQB1H103JF	CAP,P .01UF–J–50V
C2500	ECQB1H103JF	CAP,P .01UF–J–50V
C2501	ECEA1HKN010	CAP,E 1.0UF/50V
C2502	ECQB1H103JF	CAP,P .01UF–J–50V
C2503	ECQB1H103JF	CAP,P .01UF–J–50V
C2504	ECEA1HKN010	CAP,E 1.0UF/50V

REPLACEMENT PARTS LIST

(Models: PT–51G50U/CU/LU/PU/TU/VU, PT–51G52V/CV/LV/PV/TV/VV/XV & PT–61G52V/CV/LV/VV)

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REF. NO.	PART NO.	DESCRIPTION
C2505	ECQB1H103JF	CAP,P.01UF–J–50V
C2506	ECQB1H103JF	CAP,P.01UF–J–50V
C2507	ECEA1HKN010	CAP,E 1.0UF/50V
C2508	ECQB1H103JF	CAP,P.01UF–J–50V
C2509	ECQB1H103JF	CAP,P.01UF–J–50V
C2510	ECEA1HKN010	CAP,E 1.0UF/50V
C2511	TACCQ330T50V	CAP,C 33PF/50V
C2512	TACCQ330T50V	CAP,C 33PF/50V
C2513	ECA1CM221	CAP,E 220UF/16V
C2514	ECQB1H333JF	CAP,P.033UF–J–50V
C2515	TACCW152T50V	CAP,C 1500PF/50V
C2516	ECQB1H333JF	CAP,P.033UF–J–50V
C2517	ECEA1HKA010	CAP,E 1.0UF/50V
C2518	ECEA1HKN010	CAP,E 1.0UF/50V
C2519	ECEA1HKN010	CAP,E 1.0UF/50V
C2520	ECA1CM221	CAP,E 220UF/16V
C2521	ECEA1HKN010	CAP,E 1.0UF/50V
C2522	ECEA1HKA2R2	CAP,E 2.2UF/50V
C2523	ECA1CM221	CAP,E 220UF/16V
C2524	TACCX103T50V	CAP,C.01UF/50V
C2525	ECEA1HKN010	CAP,E 1.0UF/50V
C2526	ECEA1CKA100	CAP,E 10UF/16V
C2528	TACCX103T50V	CAP,C.01UF/50V
C2529	TACCW681T50V	CAP,C 680PF/50V
C2530	ECEA1HKN010	CAP,E 1.0UF/50V
C2531	ECQB1H474JF	CAP,P.47UF–J–50V
C2532	ECA1CM470	CAP,E 47UF/16V
C2533	ECQB1H104JF	CAP,P.1UF–J–50V
C2534	ECQB1H104JF	CAP,P.1UF–J–50V
C2535	ECEA1HKAR47	CAP,E.47UF/50V
C2536	ECEA1HKA4R7	CAP,E 4.7UF/50V
C2537	ECEA1HKAR47	CAP,E.47UF/50V
C2538	ECEA1HKA4R7	CAP,E 4.7UF/50V
C2539	ECQB1H154JF	CAP,P.15UF–J–50V
C2540	ECEA1HKA3R3	CAP,E 3.3UF/50V
C2541	ECQB1H154JF	CAP,P.15UF–J–50V
C2542	ECQB1H223JF	CAP,P.022UF–J–50V
C2543	ECQB1H473JF	CAP,P.047UF–J–50V
C2544	ECA1CM221	CAP,E 220UF/16V
C2545	ECEA1CKA100	CAP,E 10UF/16V
C2546	ECEA1CKA100	CAP,E 10UF/16V
C2547	ECEA1CKA100	CAP,E 10UF/16V
C2548	ECEA1CKA100	CAP,E 10UF/16V
C2549	ECA1CM221	CAP,E 220UF/16V
C2550	ECQB1H104JF	CAP,P.1UF–J–50V
C2551	ECQB1H104JF	CAP,P.1UF–J–50V
C2552	ECEA1HKAR47	CAP,E.47UF/50V
C2553	ECEA1HKA4R7	CAP,E 4.7UF/50V
C2554	ECEA1HKAR47	CAP,E.47UF/50V
C2555	ECEA1HKA4R7	CAP,E 4.7UF/50V
C2556	ECQB1H154JF	CAP,P.15UF–J–50V
C2557	ECEA1HKA3R3	CAP,E 3.3UF/50V
C2558	ECQB1H154JF	CAP,P.15UF–J–50V
C2559	ECEA1HN4R7U	CAP,E 4.7UF/50V
C2560	ECEA1HKA4R7	CAP,E 4.7UF/50V
C2561	TACCX103T50V	CAP,C.01UF/50V
C2562	ECA1CM101	CAP,E 100UF/16V
C2563	ECEA1CKA100	CAP,E 10UF/16V
C2564	ECEA1CKA100	CAP,E 10UF/16V
C2565	ECEA1HN4R7U	CAP,E 4.7UF/50V
C2566	ECEA1HN4R7S	CAP,E 4.7UF/50V
C2567	ECEA1HN4R7S	CAP,E 4.7UF/50V
C2568	ECA1HM101	CAP,E 100UF/50V
C2569	ECQB1H474JF	CAP,P.47UF–J–50V
C2570	ECA1HM330	CAP,E 33UF/50V
C2571	ECQB1H104JF	CAP,P.1UF–J–50V
C2572	ECA1HM102	CAP,E 1000UF/50V
C2574	ECEA1HKN010	CAP,E 1.0UF/50V
C2575	ECEA1HKN010	CAP,E 1.0UF/50V
C2576	TACCW103T50V	CAP,C.01UF/50V
C2577	ECA1CM101	CAP,E 100UF/16V
C2578	ECA1HM101	CAP,E 100UF/50V
C2579	ECQB1H474JF	CAP,P.47UF–J–50V
C2580	TACCW103T50V	CAP,C.01UF/50V
C2581	ECQB1H104JF	CAP,P.1UF–J–50V
C2582	ECA1HM102	CAP,E 1000UF/50V
C2584	TACCX103T50V	CAP,C.01UF/50V
C2587	ECA1HM471	CAP,E 470UF/50V
C2588	TACCX103T50V	CAP,C.01UF/50V
C2589	ECA1HM010	CAP,E 1.0UF/50V
C2590	TACCX103T50V	CAP,C.01UF/50V
C2591	ECA1CM101	CAP,E 100UF/16V
C2592	ECEA1HKA010	CAP,E 1.0UF/50V
C2593	ECEA1HKA010	CAP,E 1.0UF/50V
C2594	ECA1CM101	CAP,E 100UF/16V
C2595	ECEA1HKN010	CAP,E 1.0UF/50V
C2596	ECEA1HKN010	CAP,E 1.0UF/50V
C2597	ECEA1HKN010	CAP,E 1.0UF/50V
C2598	ECEA1HKN010	CAP,E 1.0UF/50V
C2599	ECEA1HKN010	CAP,E 1.0UF/50V
C2801	ECKD2H472PU	CAP,C.0047UF–P–500V
C2802	ECKD2H472PU	CAP,C.0047UF–P–500V
C2803	ECKD2H472PU	CAP,C.0047UF–P–500V
C2804	**EC0S2DA221BB**	**CAP,E 220UF/200V**
C2807	ECKD3D222KB	CAP,C.0022UF–K–2KV
C2808	TACCW391T50V	CAP,C 390PF/50V
C2809	ECQB1H222JF	CAP,P.0022UF–J–50V
C2810	EEUFA1H820B	CAP,E 82UF–50V
C2811	ECQB1H471JF	CAP,P.0047UF–J–50V
C2812	ECQB1H182JF	CAP,P.0018UF–J–50V
C2813	ECQB1H102JF	CAP,P.001UF–J–50V
C2814	ECQB1H103JF	CAP,P.01UF–J–50V
C2815	ECA1HM220	CAP,E 22UF/50V
C2816	ECQB1H102JF	CAP,P.001UF–J–50V
C2841	**ECKCNS471MB**	**CAP,C 470PF–M–125VAC**
C2842	**ECKCNS471MB**	**CAP,C 470PF–M–125VAC**
C2843	**ECKCNS221MB**	**CAP,C.0022UF–M–125VAC**
C2844	**ECKCNS221MB**	**CAP,C.0022UF–M–125VAC**
C2845	**ECKCNS221MB**	**CAP,C.0022UF–M–125VAC**
C2846	**ECKCNS221MB**	**CAP,C.0022UF–M–125VAC**
C2851	ECKD3A471KB	CAP,C 470PF–K–1KV
C2852	ECEA1HFS102	CAP,E 1000UF/50V

REPLACEMENT PARTS LIST

(Models: PT–51G50U/CU/LU/PU/TU/VU, PT–51G52V/CV/LV/PV/TV/VV/XV & PT–61G52V/CV/LV/VV)

Important Safety Notice: Components printed in **BOLD TYPE** have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.

REF. NO.	PART NO.	DESCRIPTION
C2853	ECKD3A471KB	CAP,C 470PF–K–1KV
C2854	ECEA1CGE102	CAP,E 1000UF/16V
C2855	ECA1HM010	CAP,E 1.0UF/50V
C2856	ECA1CM101	CAP,E 100UF/16V
C2857	ECA1CM101	CAP,E 100UF/16V
C3001	ECEA1HN010U	CAP,E 1UF/50V
C3002	ECEA1HN100U	CAP,E 10UF/50V
C3003	ECEA1HN010U	CAP,E 1UF/50V
C3007	ECA1HM010	CAP,E 1.0UF/50V
C3008	ECA1CM100	CAP,E 10UF/16V
C3009	ECA1HM010	CAP,E 1.0UF/50V
C3010	ECA1HM010	CAP,E 1.0UF/50V
C3011	ECA1CM100	CAP,E 10UF/16V
C3012	ECA1HM010	CAP,E 1.0UF/50V
C3013	ECUX1H102JCX	CAP,C .001UF–J–50V
C3014	ECUX1H102JCX	CAP,C .001UF–J–50V
C3015	ECA1CM100	CAP,E 10UF/16V
C3017	ECUX1H102JCX	CAP,C .001UF–J–50V
C3019	ECUX1H102JCX	CAP,C .001UF–J–50V
C3020	ECUX1H102JCX	CAP,C .001UF–J–50V
C3021	ECUX1H102JCX	CAP,C .001UF–J–50V
C3022	ECA1CM470	CAP,E 47UF/16V
C3023	TCUX1H103ZFN	CAP,C .01UF–Z–50V
C3024	ECA1CM100	CAP,E 10UF/16V
C3025	ECUX1H102JCX	CAP,C .001UF–J–50V
C3026	ECUX1H102JCX	CAP,C .001UF–J–50V
C3031	ECA1CM100	CAP,E 10UF/16V
C3032	ECEA1HN100U	CAP,E 10UF/50V
C3033	ECA1CM100	CAP,E 10UF/16V
C3036	ECA1HM010	CAP,E 1.0UF/50V
C3038	ECA1HM010	CAP,E 1.0UF/50V
C3044	ECA1CM100	CAP,E 10UF/16V
C3045	ECA1CM100	CAP,E 10UF/16V
C3046	ECA1CM100	CAP,E 10UF/16V
C3048	ECA1CM100	CAP,E 10UF/16V
C3049	ECA1CM100	CAP,E 10UF/16V
C3055	ECA1CM100	CAP,E 10UF/16V
C3101	ECEA1CKA100	CAP,E 10UF/16V
C3102	ECEA1CKA100	CAP,E 10UF/16V
C3111	TCUX1H103ZFN	CAP,C .01UF–Z–50V
C3112	ECA1CM101	CAP,E 100UF/16V
C3113	TCUX1H103ZFN	CAP,C .01UF–Z–50V
C3114	ECA1CM102	CAP,E 1000UF/16V
C3115	TCUX1H103ZFN	CAP,C .01UF–Z–50V
C3116	ECA1CM101	CAP,E 100UF/16V
C3117	ECUX1H820JCX	CAP,C 82PF–J–50V
C3118	ECA1CM221	CAP,E 220UF/16V
C3153	ECA1CM220	CAP,E 22UF/16V
C3154	TCUX1H103KBN	CAP,C .01UF–K–50V
C3201	ECEA1EN470U	CAP,E 47UF/25V
C3205	ECEA1CN100U	CAP,E 10UF–16V
C3214	TCUX1H103ZFN	CAP,C .01UF–Z–50V
C3222	ECUX1H221JCX	CAP,C 220PF–J–50V
C3223	ECUX1H271JCX	CAP,C 270PF–J–50V
C3225	TCUX1H103KBN	CAP,C .01UF–K–50V
C3226	TCUX1H103KBN	CAP,C .01UF–K–50V
C3227	TCUX1H103KBN	CAP,C .01UF–K–50V
C3228	TCUX1H103KBN	CAP,C .01UF–K–50V
C3229	TCUX1H103KBN	CAP,C .01UF–K–50V
C3233	ECUX1H104ZFX	CAP,C .1UF–Z–50V
C3263	ECA1CM101	CAP,E 100UF/16V
C3275	ECQB1H104KF	CAP,P .1UF–K–50V
C3276	ECQB1H104KF	CAP,P .1UF–K–50V
C3277	ECQB1H104KF	CAP,P .1UF–K–50V
C3301	ECA1CM470	CAP,E 47UF/16V
C3302	ECA1AM470	CAP,E 47UF/10V
C3303	TCUX1H103ZFN	CAP,C .01UF–Z–50V
C3304	TCUX1H103ZFN	CAP,C .01UF–Z–50V
C3305	TCUX1H103ZFN	CAP,C .01UF–Z–50V
C3307	ECUX1H100DCX	CAP,C 10PF–D–50V
C3308	ECUX1H100DCX	CAP,C 10PF–D–50V
C3309	TCUX1H103ZFN	CAP,C .01UF–Z–50V
C3310	ECA1EM4R7	CAP,E 4.7UF/25V
C3311	TCUX1H103ZFN	CAP,C .01UF–Z–50V
C3312	TCUX1H103ZFN	CAP,C .01UF–Z–50V
C3313	ECUX1H221JCX	CAP,C 220PF–J–50V
C3314	TCUX1H103ZFN	CAP,C .01UF–Z–50V
C3315	ECA1HMR22	CAP,E .22UF/50V
C3316	ECUX1H153ZFX	CAP,C .15UF–K–50V
C3318	ECUX1H221JCX	CAP,C 220PF–J–50V
C3320	TCUX1H103ZFN	CAP,C .01UF–Z–50V
C3321	TCUX1H103ZFN	CAP,C .01UF–Z–50V
C3322	ECQB1H123JF	CAP,P .012UF–J–50V
C3323	TCUX1H103ZFN	CAP,C .01UF–Z–50V
C3325	ECA1CM100	CAP,E 10UF/16V
C3328	ECA1CM101	CAP,E 100UF/16V
C3329	TCUX1H103ZFN	CAP,C .01UF–Z–50V
C3330	ECA1CM221	CAP,E 220UF/16V
C3425	ECEA1HN220U	CAP,E 22UF/50V
C3427	ECA1HMR47	CAP,E .47UF/50V
C3433	ECA1CM471	CAP,E 470UF/16V
C3434	ECA1HM010	CAP,E 1.0UF/50V
C3435	ECUX1H102JCX	CAP,C .001UF–J–50V
C3436	ECUX1H102JCX	CAP,C .001UF–J–50V
C3437	ECA1HM010	CAP,E 1.0UF/50V
C3441	ECEA1HN010U	CAP,E 1UF/50V
C4102	ECA1CM470	CAP,E 47UF/16V
C4103	TCUX1H103ZFN	CAP,C .01UF–Z–50V
C4104	ECA1CM100	CAP,E 10UF/16V
C4105	ECEA1HNR22S	CAP,E .22UF/50V
C4106	ECEA1HNR22S	CAP,E .22UF/50V
C4107	ECEA1HNR22S	CAP,E .22UF/50V
C4108	TCUX1H103ZFN	CAP,C .01UF–Z–50V
C4109	ECUX1H391JCX	CAP,C 390PF–J–50V
C4131	ECUX1H181JCX	CAP,C 180PF–J–50V
C4132	TCUX1H103ZFN	CAP,C .01UF–Z–50V
C4141	ECUX1H221JCX	CAP,C 220PF–J–50V
C4142	TCUX1H103ZFN	CAP,C .01UF–Z–50V
C4151	ECUX1H221JCX	CAP,C 220PF–J–50V
C4181	ECA1CM101	CAP,E 100UF/16V
C4182	TCUX1H103ZFN	CAP,C .01UF–Z–50V
C4183	ECA1CM101	CAP,E 100UF/16V

REPLACEMENT PARTS LIST

(Models: PT-51G50U/CU/LU/PU/TU/VU, PT-51G52V/CV/LV/PV/TV/VV/XV & PT-61G52V/CV/LV/VV)

Important Safety Notice: Components printed in **BOLD TYPE** have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.

REF. NO.	PART NO.	DESCRIPTION
C4185	ECA1CM100	CAP,E 10UF/16V
C4186	TCUX1H103ZFN	CAP,C .01UF-Z-50V
C4187	ECUX1H101KCX	CAP,C 100PF-K-50V
C4188	ECUX1H101KCX	CAP,C 100PF-K-50V
C4203	ECA1CM101	CAP,E 100UF/16V
C4204	TCUX1H103ZFN	CAP,C .01UF-Z-50V
C4222	ECEA1HN010U	CAP,E 1UF/50V
C4223	ECEA1HNR22S	CAP,E .22UF/50V
C4225	ECEA1HNR22S	CAP,E .22UF/50V
C4251	ECUX1H104ZFX	CAP,C .1UF-Z-50V
C4351	TCUX1H103ZFN	CAP,C .01UF-Z-50V
C4353	TCUX1H103ZFN	CAP,C .01UF-Z-50V
C4354	ECEA1CKA220	CAP,E 22UF/16V
C4355	ECEA1CKA100	CAP,E 10UF/16V
C4356	TCUX1H103ZFN	CAP,C .01UF-Z-50V
C4359	TCUX1H103ZFN	CAP,C .01UF-Z-50V
C4360	ECEA1CKA220	CAP,E 22UF/16V
C4361	ECEA1HKA2R2	CAP,E 2.2UF/50V
C4362	TCUX1H103ZFN	CAP,C .01UF-Z-50V
C4363	TCUX1H103ZFN	CAP,C .01UF-Z-50V
C4364	ECEA1HKA3R3	CAP,E 3.3UF/50V
C4365	ECEA1HKAR47	CAP,E .47UF/50V
C4367	TCUX1H103ZFN	CAP,C .01UF-Z-50V
C4368	ECUX1H681KBX	CAP,C 680PF-K-50V
C4369	ECEA1HKAR47	CAP,E .47UF/50V
C4370	ECUX1H391KBX	CAP,C 390PF-K-50V
C4371	ECEA1HKN010	CAP,E 1.0UF/50V
C4372	ECEA1CKA220	CAP,E 22UF/16V
C4373	TCUX1H103ZFN	CAP,C .01UF-Z-50V
C4374	ECUX1H820JCX	CAP,C 82PF-J-50V
C4375	ECEA1HKA010	CAP,E 1.0UF/50V
C4380	ECRHA030E81	TRIMMER: 30PF
C4381	ECUX1H150JCX	CAP,C 15PF-J-50V
C4384	TCUX1H103ZFN	CAP,C .01UF-Z-50V
C4385	TCUX1H103ZFN	CAP,C .01UF-Z-50V
C4501	ECEA1AKA470	CAP,E 47UF/10V
C4502	TCUX1H103KBN	CAP,C .01UF-K-50V
C4504	ECEA1CKA100	CAP,E 10UF/16V
C4506	ECUX1H101JCX	CAP,C 100PF-J-50V
C4507	ECEA1HKA010	CAP,E 1.0UF/50V
C4508	TCUX1H103KBN	CAP,C .01UF-K-50V
C4509	ECEA1CKA470	CAP,E 47UF/16V
C4510	TCUX1H103ZFN	CAP,C .01UF-Z-50V
C4591	ECEA1AKA470	CAP,E 47UF/10V
C4592	TCUX1H103ZFN	CAP,C .01UF-Z-50V
C4601	ECUX1H470JCX	CAP,C 47PF-J-50V
C4603	ECUX1H121JCX	CAP,C 120PF-J-50V
C4604	TCUX1H103KBN	CAP,C .01UF-K-50V
C4605	ECEA1HKA0R1	CAP,E .1UF/50V
C4606	ECEA1AKA470	CAP,E 47UF/10V
C4609	TCUX1H103KBN	CAP,C .01UF-K-50V
C4610	ECEA1AKA470	CAP,E 47UF/10V
C4611	ECUX1H180JCX	CAP,C 18PF-J-50V
C4612	TCUX1H103KBN	CAP,C .01UF-K-50V
C4613	ECEA1EKA4R7	CAP,E 4.7UF/25V
C4614	ECQB1H223JF	CAP,P .022UF-J-50V
C4615	ECEA1AKA470	CAP,E 47UF/10V
C4616	ECEA1HKAR47	CAP,E .47UF/50V
C4617	TCUX1H103KBN	CAP,C .01UF-K-50V
C4618	ECUX1H680JCX	CAP,C 68PF-J-50V
C4619	TCUX1H103KBN	CAP,C .01UF-K-50V
C4620	TCUX1H103KBN	CAP,C .01UF-K-50V
C4621	TCUX1H103KBN	CAP,C .01UF-K-50V
C4622	ECUX1H220JCX	CAP,C 22PF-J-50V
C4623	TCUX1H103KBN	CAP,C .01UF-K-50V
C4624	ECUX1H102KBX	CAP,C .001UF-K-50V
C4625	ECUX1H181JCX	CAP,C 180PF-J-50V
C4626	TCUX1H103KBN	CAP,C .01UF-K-50V
C4627	TCUX1H103KBN	CAP,C .01UF-K-50V
C4628	ECEA1AKA470	CAP,E 47UF/10V
C4629	ECQB1H152JF	CAP,P .0015UF-J-50V
C4630	ECEA1HKA010	CAP,E 1.0UF/50V
C4631	ECEA1HKA010	CAP,E 1.0UF/50V
C4632	TCUX1H103KBN	CAP,C .01UF-K-50V
C4633	ECEA1HKA4R7	CAP,E 4.7UF/50V
C4635	TCUX1H103KBN	CAP,C .01UF-K-50V
C4651	ECEA0JKA101	CAP,E 100UF/6.3V
C4652	ECUX1H104ZFX	CAP,C .1UF-Z-50V
C4653	ECUX1H104ZFX	CAP,C .1UF-Z-50V
C4654	ECEA1AKA470	CAP,E 47UF/10V
C4655	ECUX1H104ZFX	CAP,C .1UF-Z-50V
C4656	ECUX1H104ZFX	CAP,C .1UF-Z-50V
C4657	ECUX1H104ZFX	CAP,C .1UF-Z-50V
C4658	ECUX1H104ZFX	CAP,C .1UF-Z-50V
C4659	ECUX1C105ZFX	CAP,C 1UF-Z-16V
C4660	ECEA1AKA470	CAP,E 47UF/10V
C4671	ECUX1C105ZFX	CAP,C 1UF-Z-16V
C4672	ECEA1AKA470	CAP,E 47UF/10V
C4673	ECUX1C105ZFX	CAP,C 1UF-Z-16V
C4674	ECEA1AKA470	CAP,E 47UF/10V
C4675	ECUX1C105ZFX	CAP,C 1UF-Z-16V
C4676	ECUX1C105ZFX	CAP,C 1UF-Z-16V
C4677	ECUX1C105ZFX	CAP,C 1UF-Z-16V
C4678	ECUX1C105ZFX	CAP,C 1UF-Z-16V
C4679	ECEA1AKA470	CAP,E 47UF/10V
C4680	ECUX1C105ZFX	CAP,C 1UF-Z-16V
C4681	ECUX1C105ZFX	CAP,C 1UF-Z-16V
C4682	ECEA1HKN010	CAP,E 1.0UF/50V
C4683	ECUX1H104ZFX	CAP,C .1UF-Z-50V
C4684	ECEA1AKA470	CAP,E 47UF/10V
C4685	ECEA1AKA470	CAP,E 47UF/10V
C4701	ECEA1CKA470	CAP,E 47UF/16V
C4703	ECUX1H470JCX	CAP,C 47PF-J-50V
C6500	ECA1HM010	CAP,E 1.0UF/50V
C6501	ECEA1HN4R7U	CAP,E 4.7UF/50V
C6503	ECA1CM100	CAP,E 10UF/16V
C6504	ECQB1H104KF	CAP,P .1UF-K-50V
C6505	TCUX1H103ZFN	CAP,C .01UF-Z-50V
C6506	ECA1HM010	CAP,E 1.0UF/50V
C6507	ECA1HM010	CAP,E 1.0UF/50V
C6508	ECQB1H222JF	CAP,P .0022UF-J-50V
C6509	ECA1HM010	CAP,E 1.0UF/50V

REPLACEMENT PARTS LIST

(Models: PT–51G50U/CU/LU/PU/TU/VU, PT–51G52V/CV/LV/PV/TV/VV/XV & PT–61G52V/CV/LV/VV)

Important Safety Notice: Components printed in **BOLD TYPE** have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.

REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
C6510	ECA1HM010	CAP,E 1.0UF/50V	C7122	TCUX1H103ZFN	CAP,C.01UF–Z–50V
C6512	ECEA1HN4R7U	CAP,E 4.7UF/50V	C7123	ECA1CM101	CAP,E 100UF/16V
C6513	ECQB1H471JF	CAP,P.0047UF–J–50V	C7124	TCUX1H103ZFN	CAP,C.01UF–Z–50V
C6514	TCUX1H103ZFN	CAP,C.01UF–Z–50V	C7125	TCUX1H103ZFN	CAP,C.01UF–Z–50V
C6516	ECEA1EN470U	CAP,E 47UF/25V	C7126	ECA1CM101	CAP,E 100UF/16V
C6517	TCUX1H103ZFN	CAP,C.01UF–Z–50V	C7127	ECA1CM101	CAP,E 100UF/16V
C6518	ECA1CM220	CAP,E 22UF/16V	C7128	ECA1CM101	CAP,E 100UF/16V
C7004	ECA0JM331	CAP,E 330UF/6.3V	C7131	TCUX1H103ZFN	CAP,C.01UF–Z–50V
C7006	ECEA1HN100U	CAP,E 10UF/50V	C7132	ECA1CM101	CAP,E 100UF/16V
C7007	ECEA1HN100U	CAP,E 10UF/50V	C7133	TCUX1H103ZFN	CAP,C.01UF–Z–50V
C7008	ECEA1HN100U	CAP,E 10UF/50V	C7134	ECUX1H331JCX	CAP,C 330PF–J–50V
C7009	ECEA1HN100U	CAP,E 10UF/50V	C7135	TCUX1H103ZFN	CAP,C.01UF–Z–50V
C7010	ECEA1HN100U	CAP,E 10UF/50V	C7136	TCUX1H103ZFN	CAP,C.01UF–Z–50V
C7011	ECEA1HN100U	CAP,E 10UF/50V	C7137	TCUX1H103ZFN	CAP,C.01UF–Z–50V
C7024	ECA1HM101	CAP,E 100UF/50V	C7138	TCUX1H103ZFN	CAP,C.01UF–Z–50V
C7025	TCUX1H103ZFN	CAP,C.01UF–Z–50V	C7139	ECA1CM101	CAP,E 100UF/16V
C7030	TCUX1H103ZFN	CAP,C.01UF–Z–50V	C7140	TCUX1H103ZFN	CAP,C.01UF–Z–50V
C7031	TCUX1H103ZFN	CAP,C.01UF–Z–50V	C7141	ECA1CM101	CAP,E 100UF/16V
C7032	TCUX1H103ZFN	CAP,C.01UF–Z–50V	C7142	ECA1CM101	CAP,E 100UF/16V
C7033	ECUX1H151JCX	CAP,C 150PF–J–50V	C7143	ECA1CM101	CAP,E 100UF/16V
C7034	ECUX1H151JCX	CAP,C 150PF–J–50V	C7144	ECUX1H220JCX	CAP,C 22PF–J–50V
C7035	ECUX1H151JCX	CAP,C 150PF–J–50V	C7145	TCUX1H103ZFN	CAP,C.01UF–Z–50V
C7036	ECUX1H151JCX	CAP,C 150PF–J–50V	C7146	TCUX1H103ZFN	CAP,C.01UF–Z–50V
C7037	ECUX1H151JCX	CAP,C 150PF–J–50V	C7147	TCUX1H103ZFN	CAP,C.01UF–Z–50V
C7038	ECUX1H151JCX	CAP,C 150PF–J–50V	C7148	ECA1CM101	CAP,E 100UF/16V
C7039	ECUX1H121JCX	CAP,C 120PF–J–50V	C7149	ECA1CM101	CAP,E 100UF/16V
C7040	ECUX1H121JCX	CAP,C 120PF–J–50V	C7150	ECA1CM101	CAP,E 100UF/16V
C7041	ECUX1H121JCX	CAP,C 120PF–J–50V	C7151	TCUX1H103ZFN	CAP,C.01UF–Z–50V
C7042	ECUX1H121JCX	CAP,C 120PF–J–50V	C7152	ECUX1H220JCX	CAP,C 22PF–J–50V
C7043	ECUX1H121JCX	CAP,C 120PF–J–50V	C7153	ECA1CM101	CAP,E 100UF/16V
C7044	ECUX1H121JCX	CAP,C 120PF–J–50V	C7154	ECA1CM101	CAP,E 100UF/16V
C7045	TCUX1H103ZFN	CAP,C.01UF–Z–50V	C7155	ECA1CM101	CAP,E 100UF/16V
C7046	TCUX1H103ZFN	CAP,C.01UF–Z–50V	C7156	ECA1HM100	CAP,E 10UF/50V
C7047	TCUX1H103ZFN	CAP,C.01UF–Z–50V	C7157	ECUX1H471JCX	CAP,C 470PF–J–50V
C7062	ECUX1H104ZFX	CAP,C.1UF–Z–50V	C7159	TCUX1H103KBN	CAP,C.01UF–K–50V
C7063	ECQB1H102JF	CAP,P.001UF–J–50V	C7160	TCUX1H103KBN	CAP,C.01UF–K–50V
C7064	ECUX1H104ZFX	CAP,C.1UF–Z–50V	C7161	TCUX1H103KBN	CAP,C.01UF–K–50V
C7065	ECUX1H104ZFX	CAP,C.1UF–Z–50V	C7162	TCUX1H103KBN	CAP,C.01UF–K–50V
C7066	ECUX1H104ZFX	CAP,C.1UF–Z–50V	C7163	TCUX1H103KBN	CAP,C.01UF–K–50V
C7067	ECUX1C105ZFX	CAP,C 1UF–Z–16V	C7164	TCUX1H103KBN	CAP,C.01UF–K–50V
C7068	ECUX1C105ZFX	CAP,C 1UF–Z–16V	C7165	TCUX1H103KBN	CAP,C.01UF–K–50V
C7069	ECUX1C105ZFX	CAP,C 1UF–Z–16V	C7166	TCUX1H103KBN	CAP,C.01UF–K–50V
C7070	ECUX1C105ZFX	CAP,C 1UF–Z–16V	C7167	TCUX1H103KBN	CAP,C.01UF–K–50V
C7071	ECUX1C105ZFX	CAP,C 1UF–Z–16V	C7168	TCUX1H103KBN	CAP,C.01UF–K–50V
C7101	TCUY1C105KBM	CAP,C 1UF–K–16V	C7169	TCUX1H103KBN	CAP,C.01UF–K–50V
C7103	ECA1CM101	CAP,E 100UF/16V	C7170	TCUX1H103KBN	CAP,C.01UF–K–50V
C7104	TCUX1H103ZFN	CAP,C.01UF–Z–50V	C7171	ECA1CM101	CAP,E 100UF/16V
C7105	TCUX1H103ZFN	CAP,C.01UF–Z–50V	C7172	TCUX1H103ZFN	CAP,C.01UF–Z–50V
C7106	TCUX1H103ZFN	CAP,C.01UF–Z–50V	C7173	ECA1CM101	CAP,E 100UF/16V
C7107	TCUX1H103ZFN	CAP,C.01UF–Z–50V	C7174	TCUX1H103ZFN	CAP,C.01UF–Z–50V
C7111	TCUX1H103ZFN	CAP,C.01UF–Z–50V	C7175	TCUX1H103ZFN	CAP,C.01UF–Z–50V
C7113	TCUX1H103ZFN	CAP,C.01UF–Z–50V	C7176	TCUX1H103ZFN	CAP,C.01UF–Z–50V
C7114	ECA1CM101	CAP,E 100UF/16V	C7177	TCUX1H103ZFN	CAP,C.01UF–Z–50V
C7115	TCUX1H103ZFN	CAP,C.01UF–Z–50V	C7178	ECUX1H151JCX	CAP,C 150PF–J–50V
C7116	TCUX1H103ZFN	CAP,C.01UF–Z–50V	C7179	ECUX1H220JCX	CAP,C 22PF–J–50V
C7118	TCUX1H103ZFN	CAP,C.01UF–Z–50V	C7180	ECUX1H220JCX	CAP,C 22PF–J–50V

REPLACEMENT PARTS LIST

(Models: PT–51G50U/CU/LU/PU/TU/VU, PT–51G52V/CV/LV/PV/TV/VV/XV & PT–61G52V/CV/LV/VV)

Important Safety Notice: *Components printed in* **BOLD TYPE** *have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.*

REF. NO.	PART NO.	DESCRIPTION
C7181	ECUX1H220JCX	CAP,C 22PF–J–50V
C7182	ECUX1H220JCX	CAP,C 22PF–J–50V
C7183	ECUX1H220JCX	CAP,C 22PF–J–50V
C7184	ECUX1H220JCX	CAP,C 22PF–J–50V
C7193	ECUX1H101JCX	CAP,C 100PF–J–50V
C7194	ECUX1H101JCX	CAP,C 100PF–J–50V
		DIODES
DL4501	TAX10113	FILTER
DL4502	TAX10113	FILTER
DL4503	TAX10113	FILTER
D018	MA3330H	DIODE
D023	MA3110	DIODE
D024	MA3062M	DIODE
D301	MA151K	DIODE
D304	MA151K	DIODE
D305	MA3051M	DIODE
D351	ERA15–04	DIODE
D353	MA165	DIODE
D354	MA165	DIODE
D355	MA165	DIODE
D356	MA165	DIODE
D357	MA165	DIODE
D358	AU01Z	DIODE
D359	MA165	DIODE
D360	MA165	DIODE
D361	MA165	DIODE
D363	MA4091M	DIODE, ZENER
D364	MA167	DIODE
D371	ERA15–04	DIODE
D373	MA165	DIODE
D374	MA165	DIODE
D375	MA165	DIODE
D376	MA165	DIODE
D377	MA165	DIODE
D378	AU01Z	DIODE
D391	ERA15–04	DIODE
D393	MA165	DIODE
D394	MA165	DIODE
D395	MA165	DIODE
D396	MA165	DIODE
D397	MA165	DIODE
D398	AU01Z	DIODE
D399	TVSRM1	DIODE
D451	TVSEM1Z	DIODE
D452	MA165	DIODE
D453	MA165	DIODE
D454	ERZC07VK470C	VARISTOR
D455	AM01ZV0	DIODE
D456	AM01ZV0	DIODE
D457	AM01ZV0	DIODE
D458	AM01ZV0	DIODE
D459	MA165	DIODE
D460	MA165	DIODE
D461	MA165	DIODE
D462	MA165	DIODE
D463	MA165	DIODE
D464	MA165	DIODE
D465	AM01ZV0	DIODE
D466	AM01ZV0	DIODE
D467	MA165	DIODE
D501	MA151K	DIODE
D508	MA3043M	DIODE
D510	MA151K	DIODE
D530	MA3039H	DIODE
D531	MA704	DIODE
D532	MA3062M	DIODE
D551	RH3FLFS1	DIODE
D552	RU3ANLFA10	DIODE
D553	MA4270M	DIODE
D556	RP1H	DIODE
D562	MA4039M	DIODE, ZENER
D563	MA165	DIODE
D566	MA165	DIODE
D570	**ERA22–04**	**DIODE, ZENER**
D755	MA4030L	DIODE, ZENER
D757	MA165	DIODE
D758	MA165	DIODE
D801	**ERZC10VK361G**	**VARISTOR**
D802	**RBV–408**	**BRIDGE, RECTIFIER**
D803	ERA15–01	DIODE
D804	ERA15–01	DIODE
D805	ERA15–01	DIODE
D806	ERA15–01	DIODE
D807	MA165	DIODE
D816	MA700	DIODE
D817	AU01Z	DIODE
D818	MA4160L	DIODE
D819	**TMPG10G3**	**DIODE**
D820	MA4120M	DIODE
D821	MA165	DIODE
D831	**RU30ALFS1**	**DIODE, RECTIFIER**
D832	FML12S	DIODE
D833	RL3ZLFS1	DIODE
D834	FML12S	DIODE
D835	FML12S	DIODE
D836	**RL4ZLF–L1**	**DIODE**
D837	MA165	DIODE
D838	MA4047L	DIODE, ZENER
D839	MA4033M	DIODE, ZENER
D840	MA167	DIODE
D842	AM01ZV0	DIODE
D843	AM01ZV0	DIODE
D844	MA165	DIODE
D845	MA165	DIODE
D847	MA165	DIODE
D848	MA4150L	DIODE
D849	MA165	DIODE
D850	MA4020	DIODE
D852	MA165	DIODE
D855	MA165	DIODE
D857	MA167	DIODE
D859	AS01	DIODE

REPLACEMENT PARTS LIST

(Models: PT–51G50U/CU/LU/PU/TU/VU, PT–51G52V/CV/LV/PV/TV/VV/XV & PT–61G52V/CV/LV/VV)

Important Safety Notice: Components printed in **BOLD TYPE** have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.

REF. NO.	PART NO.	DESCRIPTION
D952	MA28WTX	DIODE
D953	MA28WTX	DIODE
D954	MA4360M	DIODE
D955	MA4360M	DIODE
D956	MA28WTX	DIODE
D957	MA165	DIODE
D958	MA165	DIODE
D959	MA165	DIODE
D960	MA165	DIODE
D1100	MA151K	DIODE
D1102	MA151K	DIODE
D1103	MA151K	DIODE
D1114	MA3051	DIODE
D1115	MA3047M	DIODE, ZENER
D1116	MA3062M	DIODE
D1117	MA3051	DIODE
D1118	MA3047M	DIODE, ZENER
D1130	MA3062M	DIODE
D1131	MA3062M	DIODE
D1132	MA3062M	DIODE
D1133	MA3062M	DIODE
D1134	MA3062M	DIODE
D1551	MA165	DIODE
D1552	MA29–B	DIODE
D1571	MA165	DIODE
D1572	MA165	DIODE
D1581	MA167	DIODE
D1583	MA4068M	DIODE, ZENER
D1584	MA4360M	DIODE
D1585	MA4360M	DIODE
D1586	MA165	DIODE
D1801	MA151K	DIODE
D1901	MA4110M	DIODE, ZENER
D1902	MA165	DIODE
D1980	MA165	DIODE
D2101	MA3056M	DIODE
D2110	MA3330H	DIODE
D2302	MA151K	DIODE
D2303	MA165	DIODE
D2353	MA151K	DIODE
D2401	MA151K	DIODE
D2402	MA151K	DIODE
D2501	MA4051L	DIODE, ZENER
D2513	MA4390H	DIODE
D2520	MA4390H	DIODE
D2521	MA4390H	DIODE
D2522	MA4390H	DIODE
D2523	MA4390H	DIODE
D2801	**TVSRM10B**	**DIODE**
D2802	**TVSRM10B**	**DIODE**
D2803	**TVSRM10B**	**DIODE**
D2804	**TVSRM10B**	**DIODE**
D2806	**TMPG10G3**	**DIODE**
D2807	AU01Z	DIODE
D2808	MA700	DIODE
D2809	MA4120M	DIODE
D2810	MA4180L	DIODE, ZENER
D2851	ERC91–02E4	DIODE
D2852	RL2Z	DIODE
D2853	MA167	DIODE
D2854	MA4027L	DIODE
D3001	MA3110	DIODE
D3002	MA3110	DIODE
D3201	MA151K	DIODE
D3202	MA151K	DIODE
D3304	MA151K	DIODE
D3305	MA151K	DIODE
D3314	MA151K	DIODE
D3315	MA3091M	DIODE
D3316	MA151K	DIODE
D3317	MA151K	DIODE
D3318	MA151K	DIODE
D3319	MA151K	DIODE
D3401	MA3110	DIODE
D3402	MA3110	DIODE
D3403	MA3110	DIODE
D3404	MA3110	DIODE
D3405	MA3110	DIODE
D3406	MA3110	DIODE
D3407	MA3110	DIODE
D3408	MA3110	DIODE
D3409	MA3110	DIODE
D3410	MA3110	DIODE
D3411	MA3110	DIODE
D3412	MA3110	DIODE
D3413	MA3110	DIODE
D3414	MA3130M	DIODE
D4102	MA151K	DIODE
D4103	MA151K	DIODE
D4104	MA151K	DIODE
D4106	MA3056M	DIODE
D4107	MA151K	DIODE
D4108	MA151WK	DIODE
D4110	MA151K	DIODE
D4171	MA151K	DIODE
D4180	MA151A	DIODE
D4502	MA3030J	DIODE
D4503	MA151K	DIODE
D6500	MA3330H	DIODE
D7030	MA151K	DIODE
		FUSES
F801	**XBA1F70NU100**	**FUSE 7.0A/125V**
F2801	**XBA1C20NU100**	**FUSE 2.0A/125V**
		INTEGRATED CIRCUITS
IC001	MN1876476T6C	INT CKT
IC005	24C02AIPA21	INT CKT
IC101	AN5170K	INT CKT
IC301	AN5307K	INT CKT
IC451	LA7845	INT CKT
IC452	M5223P	INT CKT
IC501	SN74LS74ANSL	INT CKT
IC801	**AN8026**	**INT CKT**

REPLACEMENT PARTS LIST

(Models: PT–51G50U/CU/LU/PU/TU/VU, PT–51G52V/CV/LV/PV/TV/VV/XV & PT–61G52V/CV/LV/VV)

Important Safety Notice: Components printed in **BOLD TYPE** have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.

REF. NO.	PART NO.	DESCRIPTION
IC802	**SE139NLF4**	**ERROR AMP**
IC811	**TLP621GR**	**PHOTO COUPLER**
IC832	SI–3120CA	INT CKT
IC833	AN7809	INT CKT
IC834	SI–3050CA	INT CKT
IC835	SI–3050CA	INT CKT
IC836	AN79M12–LB	INT CKT
IC1502	AN6562	INT CKT
IC1801	M65607SP	INT CKT
IC1802	M4C264AL–12	INT CKT
IC1803	M52694P	INT CKT
IC1804	MN1280R	INT CKT
IC1901	AN614	INT CKT
IC2101	AN5170K	INT CKT
IC2201	AN5818NK	INT CKT
IC2301	AN5275	INT CKT
IC2351	XRA15218N	INT CKT
IC2402	XRA15218N	INT CKT
IC2451	XRA15218N	INT CKT
IC2452	XRA15218N	INT CKT
IC2511	LA2785	INT CKT
IC2512	LV1011	INT CKT
IC2513	AN5285K	INT CKT
IC2514	M62420SP	INT CKT
IC2515	M62420SP	INT CKT
IC2516	AN5275	INT CKT
IC2517	MC14066BCP	INT CKT
IC2518	JLC1562BN	INT CKT
IC2801	**AN8026**	**INT CKT**
IC2841	**TLP621GR**	**PHOTO COUPLER**
IC2851	**TL431CLP**	**FILTER**
IC2852	AN78M09	PLUS 9V AVR
IC3001	SN103848APG	INT CKT
IC3301	AN5862K	INT CKT
IC3302	AN5342FBP	INT CKT
IC4101	PA0057A	INT CKT
IC4103	CXA1315P	INT CKT
IC4104	MC14066BCP	INT CKT
IC4501	UPC1862GS–E2	INT CKT
IC4502	UPC659AGS–E2	INT CKT
IC4503	UPD6487GF	INT CKT
IC4504	TVS1123	INT CKT
IC4506	MN4776AST1	INT CKT
IC6500	M5223FP–E1	INT CKT
IC6501	AN5348SB–E1	INT CKT
IC6502	M5223FP–E1	INT CKT
IC6503	MC14066BFEL	INT CKT
IC7001	STK4274	INT CKT
IC7002	STK4274	INT CKT
IC7003	STK4274	INT CKT
IC7102	TLC2932IPWL	INT CKT
IC7103	TVS1137	INT CKT
IC7104	SN74HC74NSTL	INT CKT
IC7105	JLC1562BFEL	INT CKT
IC7107	TVSA0030	INT CKT
IC7108	M62354FP–E2	INT CKT

REF. NO.	PART NO.	DESCRIPTION
IC7109	TVSA0034	INT CKT
IC7110	TVSA0039	INT CKT
IC7111	LC36256AML1T	INT CKT
IC7112	LC78815M–TLM	INT CKT
IC7113	LC78815M–TLM	INT CKT
IC7114	LC78815M–TLM	INT CKT
IC7115	TVSA0036	INT CKT
IC7116	UPC4570G2–E2	INT CKT
IC7117	UPC4570G2–E2	INT CKT
IC7118	UPC4570G2–E2	INT CKT
IC7119	UPC4570G2–E2	INT CKT
IC7120	UPC1093G–E1	INT CKT
IC7121	UPC4570G2–E2	INT CKT
IC7122	UPC4570G2–E2	INT CKT
IC7123	UPC4570G2–E2	INT CKT
		COILS
DY	**KDY2AS616F**	**YOKE, DEFLECTION**
LC302	ELB4A527	DELAY LINE
LC4501	TAX10069	FILTER
LC4502	TAX10069	FILTER
LC4504	TAX10069	FILTER
LC4505	TAX10069	FILTER
LC4506	TAX10069	FILTER
LC4507	EXCCET103U	FILTER
L001	TLTACT330K	COIL, PEAKING 33UH
L010	EXCELDR35	FERRITE BEAD
L103	TLTACT150K	COIL, PEAKING 15UH
L105	EIV7EN053B	COIL, VCO
L108	TLTACT330K	COIL, PEAKING 33UH
L115	TLQ015K205C	COIL, PEAKING
L116	TLQ015K205C	COIL; PEAKING
L135	TLTACT560K	COIL, PEAKING 56UH
L351	ELEBD101KA	COIL, PEAKING 100UH
L352	TLTACT820K	COIL, PEAKING 82UH
L353	TLTACT820K	COIL, PEAKING 82UH
L354	TLTACT820K	COIL, PEAKING 82UH
L355	EXCELSA35T	FERRITE BEAD
L371	ELEBD101KA	COIL, PEAKING 100UH
L372	TLTACT820K	COIL, PEAKING 82UH
L373	TLTACT820K	COIL, PEAKING 82UH
L374	TLTACT820K	COIL, PEAKING 82UH
L375	EXCELSA35T	FERRITE BEAD
L376	ELEBD101KA	COIL, PEAKING 100UH
L391	ELEBD101KA	COIL, PEAKING 100UH
L392	TLTACT820K	COIL, PEAKING 82UH
L393	TLTACT820K	COIL, PEAKING 82UH
L394	TLTACT820K	COIL, PEAKING 82UH
L395	EXCELSA35T	FERRITE BEAD
L451	EXCELSA35T	FERRITE BEAD
L549	EXCELDR35C	FERRITE BEAD
L551	ELH5L733	COIL
L552	EXCELSA35B	FERRITE BEAD
L553	EXCELSA35B	FERRITE BEAD
L601	TLTACT820K	COIL, PEAKING 82UH
L751	TLH15733M	COIL, TOP/BOTTOM PHASING
L801	**ELF18D850B**	**LINE FILTER**

REPLACEMENT PARTS LIST

(Models: PT–51G50U/CU/LU/PU/TU/VU, PT–51G52V/CV/LV/PV/TV/VV/XV & PT–61G52V/CV/LV/VV)

Important Safety Notice: Components printed in **BOLD TYPE** have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.

REF. NO.	PART NO.	DESCRIPTION
L802	**ELF18D850B**	**LINE FILTER**
L805	EXCELSA35B	FERRITE BEAD
L806	EXCELSA35B	FERRITE BEAD
L807	EXCELSA35B	FERRITE BEAD
L808	EXCELDR35	FERRITE BEAD
L809	EXCELSA35B	FERRITE BEAD
L810	EXCELSA35T	FERRITE BEAD
L811	EXCELSA35T	FERRITE BEAD
L831	EXCELSA35B	FERRITE BEAD
L832	EXCELSA39E	FERRITE BEAD
L833	TLP15103S	COIL
L834	EXCELSA35T	FERRITE BEAD
L835	EXCELSA35T	FERRITE BEAD
L836	ELEIE220KA	COIL 22UH
L837	ELEIE220KA	COIL 22UH
L839	ELEIE220KA	COIL 22UH
L840	ELEIE220KA	COIL 22UH
L844	EXCELSA35T	FERRITE BEAD
L845	EXCELSA35T	FERRITE BEAD
L846	EXCELSA35T	FERRITE BEAD
L847	EXCELSA35T	FERRITE BEAD
L848	EXCELSA35B	FERRITE BEAD
L951	EXCELDR25	COIL
L953	EXCELSA35T	FERRITE BEAD
L954	EXCELSA35T	FERRITE BEAD
L955	ELESN101JA	COIL, PEAKING 100UH
L956	ELESN101JA	COIL, PEAKING 100UH
L957	EXCELDR25	COIL
L960	TLTACT1R0K	COIL, PEAKING 1UH
L1100	EXCELSA35T	FERRITE BEAD
L1101	TLTACT6R8J	COIL, PEAKING
L1102	TLTACT100J	COIL, PEAKING 10UH
L1103	TLTACT100J	COIL, PEAKING 10UH
L1106	EXCELSA35T	FERRITE BEAD
L1107	TLTACT220J	COIL, PEAKING 22UH
L1108	TLTACT220J	COIL, PEAKING 22UH
L1109	TLTACT100J	COIL, PEAKING 10UH
L1110	TLTACT100J	COIL, PEAKING 10UH
L1111	EXCELSA35T	FERRITE BEAD
L1112	TLTACT220K	COIL, PEAKING 22UH
L1113	EXCELSA35T	FERRITE BEAD
L1302	TLTACT330K	COIL, PEAKING 33UH
L1303	TLTACT330K	COIL, PEAKING 33UH
L1304	TLTACT330K	COIL, PEAKING 33UH
L1802	EXCELDR25C	FERRITE BEAD
L1803	EXCELDR25C	FERRITE BEAD
L1805	EXCELDR25C	FERRITE BEAD
L2003	TLTACT150K	COIL, PEAKING 15UH
L2004	TLTACT330K	COIL, PEAKING 33UH
L2005	TLQ015K205C	COIL, PEAKING
L2006	TLTACT560K	COIL, PEAKING 56UH
L2007	TLQ015K205C	COIL, PEAKING
L2009	EIV7EN053B	COIL, VCO
L2110	TLTACT100K	COIL, PEAKING 10UH
L2111	TLTACT100K	COIL, PEAKING 10UH
L2113	TLTACT100K	COIL, PEAKING 10UH
L2115	TLTACT100K	COIL, PEAKING 10UH
L2116	TLTACT100K	COIL, PEAKING 10UH
L2302	EXCELSA35T	FERRITE BEAD
L2303	EXCELSA35T	FERRITE BEAD
L2304	EXCELSA35T	FERRITE BEAD
L2502	TLTACT100J	COIL, PEAKING 10UH
L2801	EXCELSA39E	FERRITE BEAD
L2802	EXCELSA39E	FERRITE BEAD
L2803	**ELF18D281A**	**CHOKE, AC LINE**
L2804	EXCELSA35B	FERRITE BEAD
L2851	EXCELSA35T	FERRITE BEAD
L2852	EXCELSA35T	FERRITE BEAD
L2853	EXCELSA35T	FERRITE BEAD
L2854	EXCELSA35T	FERRITE BEAD
L2855	ELEIE220KA	COIL 22UH
L2856	ELEIE220KA	COIL 22UH
L2857	ELEIN100KA	COIL
L2858	ELEIN100KA	COIL
L3004	TLTACT330K	COIL, PEAKING 33UH
L3202	TLTACT330K	COIL, PEAKING 33UH
L3203	TLTACT330K	COIL, PEAKING 33UH
L3301	TLTACT100K	COIL, PEAKING 10UH
L3302	ELT10Z398	DELAY LINE
L3303	TLX390KD01	COIL, PEAKING 39UH
L3304	TLX100KD01	COIL, PEAKING 10UH
L3305	TLX820KD01	COIL, PEAKING 82UH
L3307	TLX270KD01	COIL, PEAKING 27UH
L3309	ELESN100KA	COIL, PEAKING 10UH
L3310	ELESN100KA	COIL, PEAKING 10UH
L3311	TLTACT3R3K	COIL, PEAKING 3.3UH
L3314	TLTACT2R7K	COIL, PEAKING 2.7UH
L4106	ELESN100KA	COIL, PEAKING 10UH
L4351	TLTACT2R2K	COIL, PEAKING 2.2UH
L4502	ELJFA100KF	COIL, PEAKING 10UH
L4506	ELJFA101JF	COIL, PEAKING 100UH
L4508	ELJFA100KF	COIL, PEAKING 10UH
L4510	ELJFA101JF	COIL, PEAKING 100UH
L4511	ELJFA100KF	COIL, PEAKING 10UH
L4512	ELJFA101JF	COIL, PEAKING 100UH
L4513	ELJFA101JF	COIL, PEAKING 100UH
L4514	ELJFA101JF	COIL, PEAKING 100UH
L4515	ELJFA101JF	COIL, PEAKING 100UH
L4516	ELJFA100KF	COIL, PEAKING 10UH
L7101	EXCELDR35	FERRITE BEAD
L7103	EXCELDR35	FERRITE BEAD
L7104	EXCELDR35	FERRITE BEAD
L7105	EXCELDR35	FERRITE BEAD
L7106	TLTACT330J	COIL, PEAKING 33UH
L7107	TLTACT102J	COIL, PEAKING 1000UH
L7108	TLTACT102J	COIL, PEAKING 1000UH
L7109	TLTACT102J	COIL, PEAKING 1000UH
L7110	TLTACT102J	COIL, PEAKING 1000UH
L7111	TLTACT102J	COIL, PEAKING 1000UH
L7112	TLTACT102J	COIL, PEAKING 1000UH
		TRANSISTORS
Q102	MSD601–RT1	TRANSISTOR

REPLACEMENT PARTS LIST

(Models: PT–51G50U/CU/LU/PU/TU/VU, PT–51G52V/CV/LV/PV/TV/VV/XV & PT–61G52V/CV/LV/VV)

Important Safety Notice: Components printed in **BOLD TYPE** have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.

REF. NO.	PART NO.	DESCRIPTION
Q303	MSB709–RT1	TRANSISTOR
Q304	MSD601–RT1	TRANSISTOR
Q306	MSD601–RT1	TRANSISTOR
Q310	MSD601–RT1	TRANSISTOR
Q311	MSD601–RT1	TRANSISTOR
Q353	2SC3063	TRANSISTOR
Q354	2SC3063	TRANSISTOR
Q355	2SB1011	TRANSISTOR
Q356	2SB1011	TRANSISTOR
Q373	2SC3063	TRANSISTOR
Q374	2SC3063	TRANSISTOR
Q375	2SB1011	TRANSISTOR
Q376	2SB1011	TRANSISTOR
Q393	2SC3063	TRANSISTOR
Q394	2SC3063	TRANSISTOR
Q395	2SB1011	TRANSISTOR
Q396	2SB1011	TRANSISTOR
Q397	2SC1473A	TRANSISTOR
Q398	2SC1473A	TRANSISTOR
Q401	MSD601–RT1	TRANSISTOR
Q402	MSD601–RT1	TRANSISTOR
Q412	MSD601–RT1	TRANSISTOR
Q451	2SC1685QRS	TRANSISTOR
Q453	2SA564AQRS	TRANSISTOR
Q454	2SC1685QRS	TRANSISTOR
Q455	2SC1685QRS	TRANSISTOR
Q501	**2SC4212H**	**TRANSISTOR**
Q551	**2SD2454MA**	**TRANSISTOR**
Q562	2SC1685QRS	TRANSISTOR
Q563	2SA564AQRS	TRANSISTOR
Q701	2SA564AQRS	TRANSISTOR
Q702	2SC1685QRS	TRANSISTOR
Q703	2SA564AQRS	TRANSISTOR
Q704	2SD1499P	TRANSISTOR
Q801	**FS18SM–10–AB**	**TRANSISTOR**
Q802	2SC1685QRS	TRANSISTOR
Q803	2SA564AQRS	TRANSISTOR
Q812	2SC1685QRS	TRANSISTOR
Q832	2SA564AQRS	TRANSISTOR
Q835	2SA19610QAHW	TRANSISTOR
Q836	2SC1685QRS	TRANSISTOR
Q841	2SD1273A	TRANSISTOR
Q842	2SA564AQRS	TRANSISTOR
Q843	2SA564AQRS	TRANSISTOR
Q951	2SC1685QRS	TRANSISTOR
Q952	MSD601–RT1	TRANSISTOR
Q953	MSB709–RT1	TRANSISTOR
Q954	2SB940P	TRANSISTOR
Q955	2SD1264P	TRANSISTOR
Q956	2SB940P	TRANSISTOR
Q957	2SD1264P	TRANSISTOR
Q958	MSD601–RT1	TRANSISTOR
Q959	MSD601–RT1	TRANSISTOR
Q960	MSB709–RT1	TRANSISTOR
Q961	MSD601–RT1	TRANSISTOR
Q1110	MSD601–RT1	TRANSISTOR
Q1112	MSB709–RT1	TRANSISTOR
Q1113	MSB709–RT1	TRANSISTOR
Q1115	MSD601–RT1	TRANSISTOR
Q1116	MSD601–RT1	TRANSISTOR
Q1117	MSD601–RT1	TRANSISTOR
Q1118	MSB709–RT1	TRANSISTOR
Q1119	MSB709–RT1	TRANSISTOR
Q1120	MSB709–RT1	TRANSISTOR
Q1121	MSB709–RT1	TRANSISTOR
Q1125	MSD601–RT1	TRANSISTOR
Q1126	MSB709–RT1	TRANSISTOR
Q1551	2SA564AQRS	TRANSISTOR
Q1552	2SC4635–YB7	TRANSISTOR
Q1553	2SC1685QRS	TRANSISTOR
Q1571	2SC1473R	TRANSISTOR
Q1572	2SC1473R	TRANSISTOR
Q1581	2SC1685QRS	TRANSISTOR
Q1582	2SC1685QRS	TRANSISTOR
Q1583	2SA564AQRS	TRANSISTOR
Q1703	MSB709–RT1	TRANSISTOR
Q1704	MSB709–RT1	TRANSISTOR
Q1705	MSD601–RT1	TRANSISTOR
Q1716	MSD601–RT1	TRANSISTOR
Q1717	MSB709–RT1	TRANSISTOR
Q1901	2SC1685QRS	TRANSISTOR
Q1902	2SC1685QRS	TRANSISTOR
Q1903	2SC1685QRS	TRANSISTOR
Q1904	2SC1685QRS	TRANSISTOR
Q1905	2SC1685QRS	TRANSISTOR
Q1906	2SC1685QRS	TRANSISTOR
Q1907	2SC1685QRS	TRANSISTOR
Q1908	2SC1685QRS	TRANSISTOR
Q1909	2SC1685QRS	TRANSISTOR
Q2001	MSD601–RT1	TRANSISTOR
Q2310	MSD601–RT1	TRANSISTOR
Q2352	MSB709–RT1	TRANSISTOR
Q2354	MSD601–RT1	TRANSISTOR
Q2355	MSD601–RT1	TRANSISTOR
Q2401	MSD601–RT1	TRANSISTOR
Q2402	MSD601–RT1	TRANSISTOR
Q2407	MSD601–RT1	TRANSISTOR
Q2451	MSD601–RT1	TRANSISTOR
Q2452	MSD601–RT1	TRANSISTOR
Q2453	MSD601–RT1	TRANSISTOR
Q2455	MSD601–RT1	TRANSISTOR
Q2456	MSD601–RT1	TRANSISTOR
Q2457	MSD601–RT1	TRANSISTOR
Q2512	2SC1685QRS	TRANSISTOR
Q2513	2SC1685QRS	TRANSISTOR
Q2514	2SC1685QRS	TRANSISTOR
Q2801	**FS16TM–10–AV**	**TRANSISTOR**
Q3001	MSD601–RT1	TRANSISTOR
Q3152	MSD601–RT1	TRANSISTOR
Q3153	MSD601–RT1	TRANSISTOR
Q3155	MSD601–RT1	TRANSISTOR
Q3156	MSB709–RT1	TRANSISTOR

REPLACEMENT PARTS LIST

(Models: PT–51G50U/CU/LU/PU/TU/VU, PT–51G52V/CV/LV/PV/TV/VV/XV & PT–61G52V/CV/LV/VV)

Important Safety Notice: Components printed in **BOLD TYPE** have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.

REF. NO.	PART NO.	DESCRIPTION
Q3201	MSB709–RT1	TRANSISTOR
Q3203	MSD601–RT1	TRANSISTOR
Q3205	MSD601–RT1	TRANSISTOR
Q3206	MSD601–RT1	TRANSISTOR
Q3207	MSD601–RT1	TRANSISTOR
Q3208	MSD601–RT1	TRANSISTOR
Q3209	MSD601–RT1	TRANSISTOR
Q3210	MSD601–RT1	TRANSISTOR
Q3211	MSD601–RT1	TRANSISTOR
Q3212	MSD601–RT1	TRANSISTOR
Q3213	MSD601–RT1	TRANSISTOR
Q3214	MSD601–RT1	TRANSISTOR
Q3215	MSD601–RT1	TRANSISTOR
Q3216	MSD601–RT1	TRANSISTOR
Q3217	MSD601–RT1	TRANSISTOR
Q3301	MSD601–RT1	TRANSISTOR
Q3302	MSD601–RT1	TRANSISTOR
Q3304	MSB709–RT1	TRANSISTOR
Q3306	MSD601–RT1	TRANSISTOR
Q3309	MSB709–RT1	TRANSISTOR
Q3310	MSB709–RT1	TRANSISTOR
Q3311	MSD601–RT1	TRANSISTOR
Q3312	MSB709–RT1	TRANSISTOR
Q3313	MSD601–RT1	TRANSISTOR
Q3314	MSD601–RT1	TRANSISTOR
Q3411	MSB709–RT1	TRANSISTOR
Q3416	MSB709–RT1	TRANSISTOR
Q3422	MSD601–RT1	TRANSISTOR
Q4101	MSD601–RT1	TRANSISTOR
Q4102	MSD601–RT1	TRANSISTOR
Q4103	MSD601–RT1	TRANSISTOR
Q4104	MSD601–RT1	TRANSISTOR
Q4105	MSD601–RT1	TRANSISTOR
Q4106	MSD601–RT1	TRANSISTOR
Q4107	MSB709–RT1	TRANSISTOR
Q4108	MSD601–RT1	TRANSISTOR
Q4109	MSD601–RT1	TRANSISTOR
Q4131	MSB709–RT1	TRANSISTOR
Q4132	MSD601–RT1	TRANSISTOR
Q4141	MSB709–RT1	TRANSISTOR
Q4142	MSD601–RT1	TRANSISTOR
Q4151	MSB709–RT1	TRANSISTOR
Q4152	MSD601–RT1	TRANSISTOR
Q4154	MSB709–RT1	TRANSISTOR
Q4157	MSB709–RT1	TRANSISTOR
Q4201	MSD601–RT1	TRANSISTOR
Q4204	MSB709–RT1	TRANSISTOR
Q4251	MSB709–RT1	TRANSISTOR
Q4254	MSD601–RT1	TRANSISTOR
Q4351	MSB709–RT1	TRANSISTOR
Q4353	MSD601–RT1	TRANSISTOR
Q4354	MSB709–RT1	TRANSISTOR
Q4356	MSB709–RT1	TRANSISTOR
Q4357	MSD601–RT1	TRANSISTOR
Q4358	MSB709–RT1	TRANSISTOR
Q4360	MSD601–RT1	TRANSISTOR
Q4361	MSD601–RT1	TRANSISTOR
Q4362	MSD601–RT1	TRANSISTOR
Q4363	MSD601–RT1	TRANSISTOR
Q4364	MSD601–RT1	TRANSISTOR
Q4365	MSD601–RT1	TRANSISTOR
Q4366	MSD601–RT1	TRANSISTOR
Q4367	MSD601–RT1	TRANSISTOR
Q4369	MSB709–RT1	TRANSISTOR
Q4370	MSB709–RT1	TRANSISTOR
Q4371	MSD601–RT1	TRANSISTOR
Q4501	MSB709–RT1	TRANSISTOR
Q4502	MSD601–RT1	TRANSISTOR
Q4503	MSD601–RT1	TRANSISTOR
Q4504	MSD601–RT1	TRANSISTOR
Q4505	MSD601–RT1	TRANSISTOR
Q4506	MSD601–RT1	TRANSISTOR
Q4507	MSD601–RT1	TRANSISTOR
Q4601	MSD601–RT1	TRANSISTOR
Q4602	MSD601–RT1	TRANSISTOR
Q4603	MSD601–RT1	TRANSISTOR
Q4604	MSD601–RT1	TRANSISTOR
Q4605	MSB709–RT1	TRANSISTOR
Q4606	MSD601–RT1	TRANSISTOR
Q4607	MSD601–RT1	TRANSISTOR
Q4701	MSD601–RT1	TRANSISTOR
Q4702	MSD601–RT1	TRANSISTOR
Q4703	MSB709–RT1	TRANSISTOR
Q4704	MSB709–RT1	TRANSISTOR
Q4751	MSD601–RT1	TRANSISTOR
Q4752	MSD601–RT1	TRANSISTOR
Q4753	MSB709–RT1	TRANSISTOR
Q4754	MSB709–RT1	TRANSISTOR
Q6500	MSB709–RT1	TRANSISTOR
Q6501	MSD601–RT1	TRANSISTOR
Q6502	MSD601–RT1	TRANSISTOR
Q6503	MSD601–RT1	TRANSISTOR
Q6504	MSB709–RT1	TRANSISTOR
Q6505	MSD601–RT1	TRANSISTOR
Q6506	MSB709–RT1	TRANSISTOR
Q6507	MSD601–RT1	TRANSISTOR
Q6508	MSB709–RT1	TRANSISTOR
Q6509	MSB709–RT1	TRANSISTOR
Q6510	MSD601–RT1	TRANSISTOR
Q6511	MSB709–RT1	TRANSISTOR
Q7001	MSD601–RT1	TRANSISTOR
Q7002	MSD601–RT1	TRANSISTOR
Q7003	MSD601–RT1	TRANSISTOR
Q7004	MSD601–RT1	TRANSISTOR
Q7005	MSD601–RT1	TRANSISTOR
Q7010	MSB709–RT1	TRANSISTOR
Q7011	2SD814QRTX	TRANSISTOR
Q7101	MSB709–RT1	TRANSISTOR
Q7103	MSB709–RT1	TRANSISTOR
Q7105	MSB709–RT1	TRANSISTOR
Q7107	MSD601–RT1	TRANSISTOR

REPLACEMENT PARTS LIST

(Models: PT–51G50U/CU/LU/PU/TU/VU, PT–51G52V/CV/LV/PV/TV/VV/XV & PT–61G52V/CV/LV/VV)

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REF. NO.	PART NO.	DESCRIPTION
		RELAYS
RL801	**TSEH0005**	**RELAY**
		RESISTORS
R011	ERJ6GEYJ101	RES,M100–J–1/10
R012	ERJ6GEYJ101	RES,M100–J–1/10
R014	ERJ6GEYJ101	RES,M100–J–1/10
R015	ERJ6GEYJ101	RES,M100–J–1/10
R035	ERJ6GEYJ101	RES,M100–J–1/10
R040	ERDS2TJ101	RES,C100–J–1/4
R041	ERDS2TJ471	RES,C470–J–1/4
R063	ERJ6GEYJ332	RES,M3.3K–J–1/10
R070	ERJ6GEYJ332	RES,M3.3K–J–1/10
R071	ERJ6GEYJ332	RES,M3.3K–J–1/10
R080	ERDS2TJ222	RES,C2.2K–J–1/4
R081	ERDS2TJ222	RES,C2.2K–J–1/4
R082	ERDS2TJ332	RES,C3.3K–J–1/4
R083	ERDS2TJ512	RES,C5.1K–J–1/4
R084	ERDS2TJ912	RES,C9.1K–J–1/4
R085	ERDS2TJ223	RES,C22K–J–1/4
R091	ERD25TJ103	RES,C10K–J–1/4
R092	ERD25TJ103	RES,C10K–J–1/4
R102	ERJ6GEYJ102	RES,M1K–J–1/10
R103	ERJ6GEYJ102	RES,M1K–J–1/10
R112	ERJ6GEYJ102	RES,M1K–J–1/10
R113	ERJ6GEYJ221	RES,M220–J–1/10
R114	ERJ6GEYJ332	RES,M3.3K–J–1/10
R115	EVND2AA03B33	CONTROL 3K
R117	ERJ6GEYJ101	RES,M100–J–1/10
R118	ERJ6GEYJ331	RES,M330–J–1/10
R119	ERJ6GEYJ152	RES,M1.5K–J–1/10
R121	ERJ6GEYJ121	RES,M120–J–1/10
R125	ERJ6GEYJ331	RES,M330–J–1/10
R126	ERJ6GEYJ183	RES,M18K–J–1/10
R128	ERJ6GEYJ683	RES,M68K–J–1/10
R129	ERJ6GEYJ103	RES,M10K–J–1/10
R135	ERJ6GEYJ681	RES,M680–J–1/10
R151	ERJ6GEYJ473	RES,M47K–J–1/10
R152	ERJ6GEYJ473	RES,M47K–J–1/10
R202	ERJ6GEYJ221	RES,M220–J–1/10
R301	ERJ6GEYJ562	RES,M5.6K–J–1/10
R302	ERJ6GEYJ332	RES,M3.3K–J–1/10
R303	ERJ6GEYJ103	RES,M10K–J–1/10
R304	ERJ6ENF1651	RES,M1.65K–F–1/10
R306	ERJ6GEYJ823	RES,M82K–J–1/10
R307	ERJ6GEYJ333	RES,M33K–J–1/10
R308	ERJ6GEYJ221	RES,M220–J–1/10
R309	ERJ6GEYJ274	RES,M270K–J–1/10
R311	ERJ6GEYJ394	RES,M390K–J–1/10
R312	ERJ6GEYJ684	RES,M680K–J–1/10
R313	ERJ6GEYJ331	RES,M330–J–1/10
R314	ERJ6GEYJ223	RES,M22K–J–1/10
R315	ERJ6GEYJ562	RES,M5.6K–J–1/10
R317	ERJ6GEYJ223	RES,M22K–J–1/10
R318	ERJ6GEYJ223	RES,M22K–J–1/10
R319	ERDS2TJ102	RES,C1K–J–1/4
R320	ERDS2TJ102	RES,C1K–J–1/4
R321	ERG1ANJP360H	RES,M36–J–1W
R322	ERJ6GEYJ822	RES,M8.2K–J–1/10
R323	ERJ6GEYJ562	RES,M5.6K–J–1/10
R324	ERJ6GEYJ303	RES,M30K–J–1/10
R325	ERJ6ENF5601	RES,M5.6K–F–1/10
R326	ERJ6GEYJ183	RES,M18K–J–1/10
R327	ERJ6ENF2201	RES,M2.2K–F–1/10
R328	ERDS2TJ102	RES,C1K–J–1/4
R329	ERJ6GEYJ333	RES,M33K–J–1/10
R333	ERJ6GEYJ102	RES,M1K–J–1/10
R334	ERJ6GEYJ123	RES,M12K–J–1/10
R335	ERJ6GEYJ472	RES,M4.7K–J–1/10
R336	ERJ6GEYJ561	RES,M560–J–1/10
R337	ERJ6GEYJ102	RES,M1K–J–1/10
R338	ERJ6GEYJ102	RES,M1K–J–1/10
R339	ERJ6GEYJ681	RES,M680–J–1/10
R340	ERJ6GEYJ102	RES,M1K–J–1/10
R341	ERJ6GEYJ821	RES,M820–J–1/10
R351	ERDS1FJ391	RES,C390–J–1/2
R352	ERDS1TJ334	RES,C330K–J–1/2
R353	ERDS1TJ334	RES,C330K–J–1/2
R354	ERDS1TJ472	RES,C4.7K–J–1/2
R355	ERDS1TJ101	RES,C100–J–1/2
R356	ERDS2TJ103	RES,C10K–J–1/4
R358	ERDS2TJ123	RES,C12K–J–1/4
R359	ERDS2TJ472	RES,C4.7K–J–1/4
R360	**ER0S2CKF3901**	**RES,M3.9K–F–1/4**
R362	ERC12GK102	RES,S1K–K–1/2
R363	ERG3SJS562H	RES,M5.6K–J–3W
R364	ERG3SJS562H	RES,M5.6K–J–3W
R365	ERDS2TJ822	RES,C8.2K–J–1/4
R366	ERDS1FJ391	RES,C390–J–1/2
R367	ERDS1FJ391	RES,C390–J–1/2
R368	ERDS1FJ330	RES,C33–J–1/2
R369	ERDS1FJ330	RES,C33–J–1/2
R370	**ER0S2CKF3901**	**RES,M3.9K–F–1/4**
R372	ERC12GK102	RES,S1K–K–1/2
R373	ERG3SJS562H	RES,M5.6K–J–3W
R374	ERG3SJS562H	RES,M5.6K–J–3W
R375	ERDS1TJ101	RES,C100–J–1/2
R376	ERD25FJ103	RES,C10K–J–1/4
R377	ERDS2TJ105	RES,C1MEG–J–1/4
R378	ERDS2TJ123	RES,C12K–J–1/4
R379	ERDS2TJ472	RES,C4.7K–J–1/4
R380	**ER0S2CKF3901**	**RES,M3.9K–F–1/4**
R382	ERC12GK102	RES,S1K–K–1/2
R383	ERG3SJS562H	RES,M5.6K–J–3W
R384	ERG3SJS562H	RES,M5.6K–J–3W
R385	ERDS2TJ822	RES,C8.2K–J–1/4
R386	ERDS1FJ391	RES,C390–J–1/2
R387	ERDS1FJ391	RES,C390–J–1/2
R388	ERDS1FJ330	RES,C33–J–1/2
R389	ERDS1FJ330	RES,C33–J–1/2
R390	ERDS2TJ822	RES,C8.2K–J–1/4
R391	ERDS1FJ391	RES,C390–J–1/2
R392	ERDS1FJ391	RES,C390–J–1/2

REPLACEMENT PARTS LIST

(Models: PT–51G50U/CU/LU/PU/TU/VU, PT–51G52V/CV/LV/PV/TV/VV/XV & PT–61G52V/CV/LV/VV)

Important Safety Notice: Components printed in **BOLD TYPE** have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.

REF. NO.	PART NO.	DESCRIPTION
R393	ERDS1FJ330	RES,C 33–J–1/2
R394	ERDS1FJ330	RES,C 33–J–1/2
R395	ERDS1TJ101	RES,C 100–J–1/2
R396	ERD25FJ103	RES,C 10K–J–1/4
R398	ERDS2TJ123	RES,C 12K–J–1/4
R399	ERDS2TJ472	RES,C 4.7K–J–1/4
R401	ERJ6GEYJ332	RES,M 3.3K–J–1/10
R403	ERJ6GEYJ473	RES,M 47K–J–1/10
R404	ERJ6GEYJ182	RES,M 1.8K–J–1/10
R405	ERJ6GEYJ102	RES,M 1K–J–1/10
R406	ERJ6GEYJ221	RES,M 220–J–1/10
R407	ERJ6GEYJ682	RES,M 6.8K–J–1/10
R408	ERJ6GEYJ333	RES,M 33K–J–1/10
R409	ERJ6GEYJ221	RES,M 220–J–1/10
R410	ERJ6GEYJ182	RES,M 1.8K–J–1/10
R412	ERJ6GEYJ472	RES,M 4.7K–J–1/10
R425	ERJ6GEYJ183	RES,M 18K–J–1/10
R426	ERJ6GEYJ102	RES,M 1K–J–1/10
R451	ERX2SJ1R5	RES,M 1.5–J–2W
R454	ERDS2TJ271	RES,C 270–J–1/4
R455	ERDS2TJ182	RES,C 1.8K–J–1/4
R456	ERDS2TJ822	RES,C 8.2K–J–1/4
R457	ERDS1FJ6R8	RES,C 6.8–J–1/2W
R458	ERG2SJS331H	RES,M 330–J–2W
R459	ER0S2CKF3003	RES,M 300K–F–1/4W
R460	ER0S2CKF1001	RES,M 1K–F–1/4
R461	ERDS2TJ272	RES,C 2.7K–J–1/4
R462	ERDS2TJ563	RES,C 56K–J–1/4
R463	ERDS2TJ224	RES,C 220K–J–1/4
R464	ERDS2TJ103	RES,C 10K–J–1/4
R465	ERX12SJR47	RES,M .47–J–1/2
R466	ERDS2TJ102	RES,C 1K–J–1/4
R467	ERDS2TJ273	RES,C 27K–J–1/4
R468	ERX12SJR47	RES,M .47–J–1/2
R469	ERDS2TJ102	RES,C 1K–J–1/4
R470	ERDS2TJ103	RES,C 10K–J–1/4
R471	ERDS2TJ473	RES,C 47K–J–1/4
R472	ERDS2TJ103	RES,C 10K–J–1/4
R477	ER0S2CKF1202	RES,M 12K–F–1/4
R478	ER0S2CKF3242	RES,M 32.4K–F–1/4W
R479	ER0S2CKF1502	RES,M 15K–F–1/4
R480	ER0S2CKF4701	RES,M 4.7K–F–1/4
R481	ER0S2CKF7151	RES,M 7.15K–F–1/4
R483	ER0S2CKF1601	RES,M 16K–F–1/4
R484	ER0S2CKF1871	RES,M 1.87K–F–1/4
R485	ERDS2TJ472	RES,C 4.7K–J–1/4
R486	ERDS2TJ682	RES,C 6.8K–J–1/4
R487	ERDS2TJ102	RES,C 1K–J–1/4
R488	ERDS2TJ103	RES,C 10K–J–1/4
R501	ERJ6GEYJ332	RES,M 3.3K–J–1/10
R502	ERJ6GEYJ821	RES,M 820–J–1/10
R503	ERJ6GEYJ472	RES,M 4.7K–J–1/10
R504	ERJ6GEYJ122	RES,M 1.2K–J–1/10
R506	ERJ6GEYJ391	RES,M 390–J–1/10
R507	ERJ6GEYJ101	RES,M 100–J–1/10
R509	ERJ6GEYJ684	RES,M 680K–J–1/10
R511	ERJ6GEYJ101	RES,M 100–J–1/10
R513	ERDS2TJ471	RES,C 470–J–1/4
R514	ERDS2TJ561	RES,C 560–J–1/4
R515	ERG3SJD332L	RES,M 3.3K–J–3W
R516	ERQ3CJ182L	RES,F 1.8K–J–3W
R520	ERJ6GEYJ151	RES,M 150–J–1/10
R524	ERJ6GEYJ152	RES,M 1.5K–J–1/10
R534	ERJ6GEYJ681	RES,M 680–J–1/10
R536	ERJ6GEYJ821	RES,M 820–J–1/10
R551	ERG2SJD331L	RES,M 330–J–2W
R553	ERF5ZK2R2	RES,W 2.2–K–5W
R557	ERDS2TJ331	RES,C 330–J–1/4
R558	ERDS2TJ331	RES,C 330–J–1/4
R559	ERDS2TJ331	RES,C 330–J–1/4
R561	ER0S2CKF1002	RES,M 10K–F–1/4
R562	ER0S2CKF4752	RES,M 47.5K–F–1/4W
R563	ER0S2CKF3322	RES,M 33.2K–F–1/4W
R567	ERDS2TJ222	RES,C 2.2K–J–1/4
R568	ER0S2CKF2740	RES,M 274K–F–1/4
R569	ERDS2TJ123	RES,C 12K–J–1/4
R571	ERDS2TJ392	RES,C 3.9K–J–1/4
R572	ERDS2TJ273	RES,C 27K–J–1/4
R581	ERDS1TJ394	RES,C 390K–J–1/2
R583	ERQ2CJP1R0	RES,F 1.0–J–2W
R590	ERG1SJ471	RES,M 470–J–1W
R606	ERJ6GEYJ392	RES,M 3.9K–J–1/10
R607	ERJ6GEYJ331	RES,M 330–J–1/10
R608	ERJ6GEYJ182	RES,M 1.8K–J–1/10
R609	ERJ6GEYJ331	RES,M 330–J–1/10
R610	ERJ6GEYJ182	RES,M 1.8K–J–1/10
R611	ERJ6GEYJ331	RES,M 330–J–1/10
R612	ERJ6GEYJ182	RES,M 1.8K–J–1/10
R613	ERJ6GEYJ332	RES,M 3.3K–J–1/10
R614	ERJ6GEYJ332	RES,M 3.3K–J–1/10
R618	ERJ6GEYJ392	RES,M 3.9K–J–1/10
R620	ERJ6GEYJ125	RES,M 1.2MEG–J–1/10
R755	ERDS2TJ103	RES,C 10K–J–1/4
R756	ERDS2TJ222	RES,C 2.2K–J–1/4
R758	ERDS2TJ471	RES,C 470–J–1/4
R759	ERDS2TJ103	RES,C 10K–J–1/4
R760	ERDS2TJ122	RES,C 1.2K–J–1/4
R761	ERDS2TJ561	RES,C 560–J–1/4
R762	ERDS2TJ222	RES,C 2.2K–J–1/4
R763	ERQ2CJ270L	RES,F 27–J–2W
R801	**ERF15ZK3R3**	**RES,W 3.3–K–1W**
R802	**ERF15ZK4R7**	**RES,W 4.7–K–1W**
R803	**ERF15ZK3R3**	**RES,W 3.3–K–1W**
R804	**ERC12ZGK335**	**RES,S 3.3MEG–K–1/2**
R805	**ERC12ZGK825**	**RES,S 8.2MEG–K–1/2**
R807	ERDS2TJ472	RES,C 4.7K–J–1/4
R808	ERG3SJS333H	RES,M 33K–J–3W
R809	ERDS2TJ104	RES,C 100K–J–1/4
R810	**ERX12SJR22**	**RES,M .22–J–1/2**
R811	**ERX12SJR22**	**RES,M .22–J–1/2**
R812	ERDS2TJ103	RES,C 10K–J–1/4
R813	ERDS1FJ471	RES,C 470–J–1/2

REPLACEMENT PARTS LIST

(Models: PT–51G50U/CU/LU/PU/TU/VU, PT–51G52V/CV/LV/PV/TV/VV/XV & PT–61G52V/CV/LV/VV)

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REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
R814	ERDS2TJ4R7	RES,C4.7–J–1/4	R955	ERJ6GEYJ222	RES,M2.2K–J–1/10
R815	ERDS2TJ222	RES,C2.2K–J–1/4	R956	ERJ6GEYJ222	RES,M2.2K–J–1/10
R816	ERDS2TJ471	RES,C470–J–1/4	R957	ERJ6GEYJ681	RES,M680–J–1/10
R817	ER0S2CKF1371	RES,M1370–F–1/4W	R958	ERJ6GEYJ681	RES,M680–J–1/10
R818	**ERC12ZGK825**	**RES,S8.2MEG–K–1/2**	R959	ERJ6GEYJ222	RES,M2.2K–J–1/10
R820	ERDS1FJ470	RES,C47–J–1/2	R960	ERJ6GEYJ104	RES,M100K–J–1/10
R823	ERDS2TJ472	RES,C4.7K–J–1/4	R961	ERQ14AJ100	RES,F10–J–1/4
R824	ERDS2TJ563	RES,C56K–J–1/4	R962	ERDS2TJ331	RES,C330–J–1/4
R825	ERDS2TJ152	RES,C1.5K–J–1/4	R963	ERDS2TJ223	RES,C22K–J–1/4
R826	ERDS2TJ333	RES,C33K–J–1/4	R964	ERDS2TJ223	RES,C22K–J–1/4
R827	ERDS2TJ103	RES,C10K–J–1/4	R965	ERDS2TJ331	RES,C330–J–1/4
R828	ERDS2TJ471	RES,C470–J–1/4	R966	ERDS1FJ390	RES,C39–J–1/2
R829	ERDS2TJ104	RES,C100K–J–1/4	R967	ERDS2TJ2R7	RES,C2.7–J–1/4
R831	ERDS2TJ470	RES,C47–J–1/4	R969	ERDS2TJ2R7	RES,C2.7–J–1/4
R832	ERDS2TJ102	RES,C1K–J–1/4	R970	ERDS1FJ390	RES,C39–J–1/2
R833	ERDS2TJ101	RES,C100–J–1/4	R971	ERJ6GEYJ332	RES,M3.3K–J–1/10
R834	ERQ14AJ101	RES,F100–J–1/4	R972	ERDS1FJ390	RES,C39–J–1/2
R839	ERDS2TJ271	RES,C270–J–1/4	R973	ERDS2TJ2R7	RES,C2.7–J–1/4
R840	ERDS2TJ102	RES,C1K–J–1/4	R975	ERDS2TJ2R7	RES,C2.7–J–1/4
R841	ERDS2TJ561	RES,C560–J–1/4	R976	ERDS1FJ390	RES,C39–J–1/2
R842	ERDS2TJ104	RES,C100K–J–1/4	R979	ERDS1FJ471	RES,C470–J–1/2
R843	ERDS2TJ683	RES,C68K–J–1/4	R980	ERDS1FJ270	RES,C27K–J–1/2
R848	ERG2SJS823H	RES,M82K–J–2W	R981	ERDS2TJ560	RES,C56–J–1/4
R849	ERDS2TJ562	RES,C5.6K–J–1/4	R982	ERDS2TJ560	RES,C56–J–1/4
R850	**ERX1SJ1R0**	**RES,M1.0–J–1W**	R983	ERJ6GEYJ101	RES,M100–J–1/10
R851	**ERX1SJ1R0**	**RES,M1.0–J–1W**	R984	ERJ6GEYJ101	RES,M100–J–1/10
R852	ERDS2TJ563	RES,C56K–J–1/4	R1111	ERJ6GEYJ220	RES,M22–J–1/10
R853	ERDS2TJ332	RES,C3.3K–J–1/4	R1112	ERJ6GEYJ223	RES,M22K–J–1/10
R854	ERDS1FJ122	RES,C1.2K–J–1/2	R1114	ERJ6GEYJ331	RES,M330–J–1/10
R855	ERDS2TJ101	RES,C100–J–1/4	R1115	ERJ6GEYJ102	RES,M1K–J–1/10
R856	ERDS2TJ271	RES,C270–J–1/4	R1116	ERJ6GEYJ103	RES,M10K–J–1/10
R857	ERDS2TJ332	RES,C3.3K–J–1/4	R1117	ERJ6GEYJ103	RES,M10K–J–1/10
R858	ERDS2TJ562	RES,C5.6K–J–1/4	R1118	ERJ6GEYJ103	RES,M10K–J–1/10
R867	ERDS1FJ561	RES,C560–J–1/2	R1119	ERJ6GEYJ182	RES,M1.8K–J–1/10
R868	ERDS1FJ561	RES,C560–J–1/2	R1120	ERJ6GEYJ182	RES,M1.8K–J–1/10
R869	ERDS1FJ561	RES,C560–J–1/2	R1121	ERJ6GEYJ102	RES,M1K–J–1/10
R870	ERDS1FJ561	RES,C560–J–1/2	R1123	ERJ6GEYJ182	RES,M1.8K–J–1/10
R871	ERDS2TJ102	RES,C1K–J–1/4	R1124	ERJ6GEYJ103	RES,M10K–J–1/10
R872	ERDS2TJ153	RES,C15K–J–1/4	R1125	ERJ6GEYJ103	RES,M10K–J–1/10
R873	ERDS2TJ153	RES,C15K–J–1/4	R1126	ERJ6GEYJ562	RES,M5.6K–J–1/10
R874	ERDS2TJ562	RES,C5.6K–J–1/4	R1129	ERJ6GEYJ223	RES,M22K–J–1/10
R876	ERG2SJS683H	RES,M68K–J–2W	R1133	ERJ6GEYJ562	RES,M5.6K–J–1/10
R877	**ERX12SJR22**	**RES,M.22–J–1/2**	R1134	ERJ6GEYJ103	RES,M10K–J–1/10
R880	ERDS2TJ103	RES,C10K–J–1/4	R1135	ERJ6GEYJ103	RES,M10K–J–1/10
R941	ERJ6GEYJ101	RES,M100–J–1/10	R1136	ERJ6GEYJ103	RES,M10K–J–1/10
R942	ERJ6GEYJ223	RES,M22K–J–1/10	R1137	ERJ6GEYJ103	RES,M10K–J–1/10
R943	ERJ6GEYJ222	RES,M2.2K–J–1/10	R1138	ERJ6GEYJ103	RES,M10K–J–1/10
R944	ERJ6GEYJ151	RES,M150–J–1/10	R1139	ERJ6GEYJ472	RES,M4.7K–J–1/10
R945	ERJ6GEYJ122	RES,M1.2K–J–1/10	R1140	ERJ6GEYJ822	RES,M8.2K–J–1/10
R946	ERJ6GEYJ471	RES,M470–J–1/10	R1142	ERJ6GEYJ102	RES,M1K–J–1/10
R947	ERJ6GEYJ821	RES,M820–J–1/10	R1143	ERJ6GEYJ101	RES,M100–J–1/10
R948	ERJ6GEYJ222	RES,M2.2K–J–1/10	R1144	ERJ6GEYJ101	RES,M100–J–1/10
R949	ERJ6GEYJ222	RES,M2.2K–J–1/10	R1145	ERJ6GEYJ332	RES,M3.3K–J–1/10
R951	ERJ6GEYJ103	RES,M10K–J–1/10	R1146	ERJ6GEYJ221	RES,M220–J–1/10
R952	ERJ6GEYJ272	RES,M2.7K–J–1/10	R1147	ERJ6GEYJ102	RES,M1K–J–1/10
R953	ERJ6GEYJ471	RES,M470–J–1/10	R1148	ERJ6GEYJ102	RES,M1K–J–1/10

REPLACEMENT PARTS LIST

(Models: PT–51G50U/CU/LU/PU/TU/VU, PT–51G52V/CV/LV/PV/TV/VV/XV & PT–61G52V/CV/LV/VV)

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REF. NO.	PART NO.	DESCRIPTION
R1149	ERJ6GEYJ473	RES,M47K–J–1/10
R1150	ERJ6GEYJ102	RES,M1K–J–1/10
R1151	ERJ6GEYJ102	RES,M1K–J–1/10
R1152	ERJ6GEYJ102	RES,M1K–J–1/10
R1154	ERJ6GEYJ101	RES,M100–J–1/10
R1155	ERJ6GEYJ101	RES,M100–J–1/10
R1156	ERJ6GEYJ101	RES,M100–J–1/10
R1157	ERJ6GEYJ101	RES,M100–J–1/10
R1159	ERJ6GEYJ681	RES,M680–J–1/10
R1160	ERJ6GEYJ102	RES,M1K–J–1/10
R1161	ERJ6GEYJ103	RES,M10K–J–1/10
R1162	ERJ6GEYJ102	RES,M1K–J–1/10
R1163	ERJ6GEYJ103	RES,M10K–J–1/10
R1164	ERJ6GEYJ101	RES,M100–J–1/10
R1166	ERJ6GEYJ472	RES,M4.7K–J–1/10
R1169	ERJ6GEYJ101	RES,M100–J–1/10
R1170	ERJ6GEYJ103	RES,M10K–J–1/10
R1171	ERJ6GEYJ102	RES,M1K–J–1/10
R1172	ERJ6GEYJ222	RES,M2.2K–J–1/10
R1173	ERJ6GEYJ101	RES,M100–J–1/10
R1174	ERJ6GEYJ101	RES,M100–J–1/10
R1200	ERJ6GEYJ182	RES,M1.8K–J–1/10
R1201	ERJ6GEYJ151	RES,M150–J–1/10
R1202	ERJ6GEYJ682	RES,M6.8K–J–1/10
R1203	ERJ6GEYJ102	RES,M1K–J–1/10
R1204	ERJ6GEYJ102	RES,M1K–J–1/10
R1205	ERJ6GEYJ474	RES,M470K–J–1/10
R1208	ERJ6GEYJ222	RES,M2.2K–J–1/10
R1210	ERJ6GEYJ471	RES,M470–J–1/10
R1211	ERJ6GEYJ103	RES,M10K–J–1/10
R1212	ERJ6GEYJ122	RES,M1.2K–J–1/10
R1213	ERJ6GEYJ332	RES,M3.3K–J–1/10
R1214	ERDS2TJ101	RES,C100–J–1/4
R1215	ERJ6GEYJ101	RES,M100–J–1/10
R1216	ERJ6GEYJ821	RES,M820–J–1/10
R1217	ERJ6GEYJ222	RES,M2.2K–J–1/10
R1218	ERJ6GEYJ103	RES,M10K–J–1/10
R1219	ERJ6GEYJ473	RES,M47K–J–1/10
R1220	ERJ6GEYJ333	RES,M33K–J–1/10
R1221	ERJ6GEYJ562	RES,M5.6K–J–1/10
R1222	ERJ6GEYJ562	RES,M5.6K–J–1/10
R1223	ERJ6GEYJ222	RES,M2.2K–J–1/10
R1224	ERJ6GEYJ472	RES,M4.7K–J–1/10
R1234	ERJ6GEYJ682	RES,M6.8K–J–1/10
R1236	ERJ6GEYJ122	RES,M1.2K–J–1/10
R1237	ERJ6GEYJ682	RES,M6.8K–J–1/10
R1238	ERJ6GEYJ122	RES,M1.2K–J–1/10
R1239	ERJ6GEYJ682	RES,M6.8K–J–1/10
R1240	ERJ6GEYJ122	RES,M1.2K–J–1/10
R1241	ERJ6GEYJ103	RES,M10K–J–1/10
R1243	ERJ6GEYJ102	RES,M1K–J–1/10
R1245	ERJ6GEYJ103	RES,M10K–J–1/10
R1250	ERJ6GEYJ222	RES,M2.2K–J–1/10
R1251	ERJ6GEYJ222	RES,M2.2K–J–1/10
R1252	ERJ6GEYJ103	RES,M10K–J–1/10
R1253	ERJ6GEYJ103	RES,M10K–J–1/10
R1254	ERJ6GEYJ103	RES,M10K–J–1/10
R1260	ERJ6GEYJ222	RES,M2.2K–J–1/10
R1261	ERJ6GEYJ222	RES,M2.2K–J–1/10
R1265	ERJ6GEYJ123	RES,M12K–J–1/10
R1266	ERJ6GEYJ123	RES,M12K–J–1/10
R1273	ERJ6GEYJ102	RES,M1K–J–1/10
R1275	ERG2SJS220H	RES,M22–J–2W
R1280	ERJ6GEYJ101	RES,M100–J–1/10
R1281	ERJ6GEYJ101	RES,M100–J–1/10
R1501	EVN32CA00B54	CONTROL 50K
R1502	ERDS2TJ100	RES,C10–J–1/4
R1503	ERDS2TJ393	RES,C39K–J–1/4
R1504	ERDS2TJ103	RES,C10K–J–1/4
R1505	ERDS2TJ103	RES,C10K–J–1/4
R1507	ERDS2TJ683	RES,C68K–J–1/4
R1508	ERDS2TJ273	RES,C27K–J–1/4
R1509	ERDS2TJ472	RES,C4.7K–J–1/4
R1510	ERDS2TJ472	RES,C4.7K–J–1/4
R1511	ERDS2TJ103	RES,C10K–J–1/4
R1551	ERDS2TJ473	RES,C47K–J–1/4
R1552	ERDS2TJ101	RES,C100–J–1/4
R1553	ERDS2TJ123	RES,C12K–J–1/4
R1554	ER0S2CKF3162	RES,M31.6K–F–1/4W
R1555	ER0S2CKF2871	RES,M2.87K–F–1/4
R1556	ERDS2TJ101	RES,C100–J–1/4
R1557	ER0S2CKF3321	RES,M3.32K–F–1/4W
R1558	ERDS2TJ101	RES,C100–J–1/4
R1559	ERDS2TJ221	RES,C220–J–1/4
R1560	ERDS2TJ221	RES,C220–J–1/4
R1561	ERDS2TJ821	RES,C820–J–1/4
R1562	ERDS2TJ104	RES,C100K–J–1/4
R1563	ERG2SJD273L	RES,M27K–J–2W
R1564	ERG2SJD273L	RES,M27K–J–2W
R1565	ERG2SJD273L	RES,M27K–J–2W
R1566	ERG2SJD273L	RES,M27K–J–2W
R1567	ERG2SJD273L	RES,M27K–J–2W
R1568	ERC12GK333	RES,S33K–K–1/2
R1569	ERG2SJD273L	RES,M27K–J–2W
R1571	ERDS2TJ471	RES,C470–J–1/4
R1572	ERDS2TJ102	RES,C1K–J–1/4
R1573	ER0S2CKF1003	RES,M100K–F–1/4
R1574	ER0S2CKF1582	RES,M15.8K–F–1/4W
R1581	ERQ12HJ330	RES,F33–J–1/2
R1582	ERDS2TJ103	RES,C10K–J–1/4
R1583	EVN32CA00B23	CONTROL 2K
R1584	ERDS2TJ472	RES,C4.7K–J–1/4
R1585	ERDS2TJ222	RES,C2.2K–J–1/4
R1586	ERDS2TJ103	RES,C10K–J–1/4
R1588	ERDS2TJ222	RES,C2.2K–J–1/4
R1589	ERDS2TJ472	RES,C4.7K–J–1/4
R1590	ERDS2TJ562	RES,C5.6K–J–1/4
R1591	ERDS2TJ222	RES,C2.2K–J–1/4
R1592	ERDS2TJ682	RES,C6.8K–J–1/4
R1593	ERDS2TJ682	RES,C6.8K–J–1/4
R1594	ERDS2TJ222	RES,C2.2K–J–1/4
R1595	ERDS2TJ222	RES,C2.2K–J–1/4

REPLACEMENT PARTS LIST

(Models: PT-51G50U/CU/LU/PU/TU/VU, PT-51G52V/CV/LV/PV/TV/VV/XV & PT-61G52V/CV/LV/VV)

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REF. NO.	PART NO.	DESCRIPTION
R1700	ERJ6GEYJ472	RES;M4.7K-J-1/10
R1709	ERJ6GEYJ223	RES,M22K-J-1/10
R1716	ERJ6GEYJ472	RES,M4.7K-J-1/10
R1717	ERJ6GEYJ561	RES,M560-J-1/10
R1718	ERJ6ENF1802	RES,M18K-F-1/10
R1719	ERJ6ENF1202	RES,M12K-F-1/10
R1720	ERJ6GEYJ332	RES,M3.3K-J-1/10
R1721	ERJ6GEYJ561	RES,M560-J-1/10
R1722	ERJ6GEYJ102	RES,M1K-J-1/10
R1726	ERJ6GEYJ223	RES,M22K-J-1/10
R1737	ERJ6GEYJ152	RES,M1.5K-J-1/10
R1738	ERJ6GEYJ681	RES,M680-J-1/10
R1739	ERJ6GEYJ102	RES,M1K-J-1/10
R1740	ERJ6GEYJ103	RES,M10K-J-1/10
R1741	ERJ6GEYJ472	RES,M4.7K-J-1/10
R1743	ERJ6GEYJ471	RES,M470-J-1/10
R1744	ERJ6GEYJ222	RES,M2.2K-J-1/10
R1801	ERJ6GEYJ101	RES,M100-J-1/10
R1802	ERJ6GEYJ101	RES,M100-J-1/10
R1803	ERJ6GEYJ103	RES,M10K-J-1/10
R1804	ERJ6GEYJ562	RES,M5.6K-J-1/10
R1805	ERJ6GEYJ273	RES,M27K-J-1/10
R1806	ERJ6GEYJ750	RES,M75-J-1/10
R1807	ERJ6GEYJ750	RES,M75-J-1/10
R1811	ERJ6GEYJ103	RES,M10K-J-1/10
R1812	ERJ6GEYJ103	RES,M10K-J-1/10
R1813	ERJ6GEYJ103	RES,M10K-J-1/10
R1814	EVND8AA03B23	CONTROL 2K
R1815	ERJ6GEYJ473	RES,M47K-J-1/10
R1816	ERJ6GEYJ473	RES,M47K-J-1/10
R1817	ERJ6GEYJ683	RES,M68K-J-1/10
R1818	ERJ6GEYJ562	RES,M5.6K-J-1/10
R1821	ERJ6GEYJ221	RES,M220-J-1/10
R1822	ERJ6GEYJ221	RES,M220-J-1/10
R1823	ERJ6GEYJ221	RES,M220-J-1/10
R1824	ERJ6GEYJ221	RES,M220-J-1/10
R1825	ERJ6GEYJ221	RES,M220-J-1/10
R1826	ERJ6GEYJ221	RES,M220-J-1/10
R1827	ERJ6GEYJ221	RES,M220-J-1/10
R1828	ERJ6GEYJ221	RES,M220-J-1/10
R1901	ERDS2TJ333	RES,C33K-J-1/4
R1902	ERDS2TJ823	RES,C82K-J-1/4
R1903	ERDS2TJ103	RES,C10K-J-1/4
R1904	ERDS2TJ103	RES,C10K-J-1/4
R1905	ERDS2TJ102	RES,C1K-J-1/4
R1906	ERDS2TJ101	RES,C100-J-1/4
R1907	ERDS2TJ102	RES,C1K-J-1/4
R1908	ERDS2TJ332	RES,C3.3K-J-1/4
R1910	ERDS2TJ473	RES,C47K-J-1/4
R1911	ERDS2TJ273	RES,C27K-J-1/4
R1912	ERDS2TJ103	RES,C10K-J-1/4
R1913	ERDS2TJ823	RES,C82K-J-1/4
R1914	ERDS2TJ223	RES,C22K-J-1/4
R1915	ERDS2TJ332	RES,C3.3K-J-1/4
R1916	ERDS2TJ101	RES,C100-J-1/4
R1917	ERDS2TJ391	RES,C390-J-1/4
R1918	ERDS2TJ271	RES,C270-J-1/4
R1919	ERDS2TJ562	RES,C5.6K-J-1/4
R1920	ERDS2TJ683	RES,C68K-J-1/4
R1921	ERDS2TJ103	RES,C10K-J-1/4
R1922	ERDS2TJ682	RES,C6.8K-J-1/4
R1923	ERDS2TJ821	RES,C820-J-1/4
R1924	ERDS2TJ101	RES,C100-J-1/4
R1925	ERDS2TJ182	RES,C1.8K-J-1/4
R1927	ERDS2TJ122	RES,C1.2K-J-1/4
R1928	ERDS2TJ103	RES,C10K-J-1/4
R1930	ERDS2TJ152	RES,C1.5K-J-1/4
R1933	ERDS2TJ152	RES,C1.5K-J-1/4
R1934	ERDS2TJ332	RES,C3.3K-J-1/4
R1935	ERDS2TJ102	RES,C1K-J-1/4
R1936	EVND2AA03B24	CONTROL 20K
R1937	ERDS2TJ103	RES,C10K-J-1/4
R1938	ERDS2TJ104	RES,C100K-J-1/4
R1939	ERDS2TJ102	RES,C1K-J-1/4
R1940	ERDS2TJ473	RES,C47K-J-1/4
R1941	ERDS2TJ223	RES,C22K-J-1/4
R1942	ERDS2TJ822	RES,C8.2K-J-1/4
R1943	ERDS2TJ122	RES,C1.2K-J-1/4
R1945	ERDS2TJ182	RES,C1.8K-J-1/4
R1946	ERDS2TJ274	RES,C270K-J-1/4
R1947	EVND2AA03B24	CONTROL 20K
R1948	EVND2AA03B13	CONTROL 1K
R1949	ERDS2TJ562	RES,C5.6K-J-1/4
R1950	ERDS2TJ182	RES,C1.8K-J-1/4
R1966	ERDS2TJ561	RES,C560-J-1/4
R2006	ERJ6GEYJ183	RES,M18K-J-1/10
R2009	ERJ6GEYJ683	RES,M68K-J-1/10
R2010	ERJ6GEYJ331	RES,M330-J-1/10
R2011	ERJ6GEYJ152	RES,M1.5K-J-1/10
R2012	ERJ6GEYJ331	RES,M330-J-1/10
R2013	ERJ6GEYJ102	RES,M1K-J-1/10
R2014	ERJ6GEYJ681	RES,M680-J-1/10
R2016	ERJ6GEYJ102	RES,M1K-J-1/10
R2017	ERJ6GEYJ121	RES,M120-J-1/10
R2018	EVND8AA03B14	CONTROL 10K
R2019	ERJ6GEYJ682	RES,M6.8K-J-1/10
R2021	ERJ6GEYJ221	RES,M220-J-1/10
R2022	ERJ6GEYJ473	RES,M47K-J-1/10
R2023	ERJ6GEYJ473	RES,M47K-J-1/10
R2024	ERJ6GEYJ332	RES,M3.3K-J-1/10
R2201	ERJ6GEYJ472	RES,M4.7K-J-1/10
R2202	ERJ6GEYJ153	RES,M15K-J-1/10
R2203	ERJ6GEYJ104	RES,M100K-J-1/10
R2204	ERJ6GEYJ473	RES,M47K-J-1/10
R2205	ERJ6GEYJ154	RES,M150K-J-1/10
R2208	ERJ6ENF9102	RES,M91K-F-1/10
R2212	ERJ6GEYJ682	RES,M6.8K-J-1/10
R2219	ERDS2TJ684	RES,C680K-J-1/4
R2230	ERJ6GEYJ332	RES,M3.3K-J-1/10
R2231	ERJ6GEYJ562	RES,M5.6K-J-1/10
R2277	ERJ6GEYJ331	RES,M330-J-1/10
R2301	ERJ6GEYJ333	RES,M33K-J-1/10

REPLACEMENT PARTS LIST

(Models: PT-51G50U/CU/LU/PU/TU/VU, PT-51G52V/CV/LV/PV/TV/VV/XV & PT-61G52V/CV/LV/VV)

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REF. NO.	PART NO.	DESCRIPTION
R2302	ERJ6GEYJ333	RES,M33K–J–1/10
R2303	ERJ6GEYJ392	RES,M3.9K–J–1/10
R2304	ERJ6GEYJ392	RES,M3.9K–J–1/10
R2305	ERJ6GEYJ2R2	RES,M2.2–J–1/10
R2306	ERJ6GEYJ2R2	RES,M2.2–J–1/10
R2310	ERJ6GEYJ104	RES,M100K–J–1/10
R2312	ERJ6GEYJ222	RES,M2.2K–J–1/10
R2319	ERJ6GEYJ101	RES,M100–J–1/10
R2320	ERJ6GEYJ562	RES,M5.6K–J–1/10
R2350	ERJ6GEYJ103	RES,M10K–J–1/10
R2351	ERJ6GEYJ104	RES,M100K–J–1/10
R2352	ERJ6GEYJ104	RES,M100K–J–1/10
R2353	ERJ6GEYJ104	RES,M100K–J–1/10
R2354	ERJ6GEYJ104	RES,M100K–J–1/10
R2355	ERD25FJ101	RES,C100–J–1/4
R2360	ERJ6GEYJ332	RES,M3.3K–J–1/10
R2361	ERJ6GEYJ332	RES,M3.3K–J–1/10
R2362	ERJ6GEYJ103	RES,M10K–J–1/10
R2363	ERJ6GEYJ103	RES,M10K–J–1/10
R2364	ERJ6GEYJ102	RES,M1K–J–1/10
R2365	ERJ6GEYJ102	RES,M1K–J–1/10
R2366	ERJ6GEYJ473	RES,M47K–J–1/10
R2371	ERJ6GEYJ473	RES,M47K–J–1/10
R2372	ERJ6GEYJ102	RES,M1K–J–1/10
R2373	ERJ6GEYJ102	RES,M1K–J–1/10
R2381	ERJ6GEYJ183	RES,M18K–J–1/10
R2382	ERJ6GEYJ472	RES,M4.7K–J–1/10
R2383	ERJ6GEYJ183	RES,M18K–J–1/10
R2384	ERJ6GEYJ472	RES,M4.7K–J–1/10
R2386	ERJ6GEYJ223	RES,M22K–J–1/10
R2388	ERJ6GEYJ222	RES,M2.2K–J–1/10
R2407	ERJ6GEYJ181	RES,M180–J–1/10
R2408	ERJ6GEYJ104	RES,M100K–J–1/10
R2412	ERJ6GEYJ561	RES,M560–J–1/10
R2414	ERJ6GEYJ103	RES,M10K–J–1/10
R2415	ERJ6GEYJ103	RES,M10K–J–1/10
R2416	ERJ6GEYJ103	RES,M10K–J–1/10
R2417	ERJ6GEYJ333	RES,M33K–J–1/10
R2430	ERJ6GEYJ103	RES,M10K–J–1/10
R2431	ERJ6GEYJ103	RES,M10K–J–1/10
R2432	ERJ6GEYJ183	RES,M18K–J–1/10
R2433	ERJ6GEYJ103	RES,M10K–J–1/10
R2435	ERJ6GEYJ223	RES,M22K–J–1/10
R2436	ERJ6GEYJ103	RES,M10K–J–1/10
R2437	ERJ6GEYJ222	RES,M2.2K–J–1/10
R2441	ERJ6GEYJ333	RES,M33K–J–1/10
R2442	ERJ6GEYJ473	RES,M47K–J–1/10
R2443	ERJ6GEYJ473	RES,M47K–J–1/10
R2444	ERJ6GEYJ183	RES,M18K–J–1/10
R2445	ERJ6GEYJ183	RES,M18K–J–1/10
R2446	ERJ6GEYJ154	RES,M150K–J–1/10
R2447	ERJ6GEYJ154	RES,M150K–J–1/10
R2448	ERJ6GEYJ104	RES,M100K–J–1/10
R2449	ERJ6GEYJ104	RES,M100K–J–1/10
R2450	ERJ6GEYJ562	RES,M5.6K–J–1/10
R2451	ERJ6GEYJ103	RES,M10K–J–1/10
R2452	ERJ6GEYJ104	RES,M100K–J–1/10
R2453	ERJ6GEYJ103	RES,M10K–J–1/10
R2454	ERJ6GEYJ103	RES,M10K–J–1/10
R2455	ERJ6GEYJ154	RES,M150K–J–1/10
R2456	ERJ6GEYJ154	RES,M150K–J–1/10
R2457	ERJ6GEYJ123	RES,M12K–J–1/10
R2458	ERJ6GEYJ104	RES,M100K–J–1/10
R2459	ERJ6GEYJ102	RES,M1K–J–1/10
R2460	ERJ6GEYJ562	RES,M5.6K–J–1/10
R2461	ERJ6GEYJ562	RES,M5.6K–J–1/10
R2462	ERJ6GEYJ562	RES,M5.6K–J–1/10
R2463	ERJ6GEYJ153	RES,M15K–J–1/10
R2464	ERJ6GEYJ153	RES,M15K–J–1/10
R2465	ERJ6GEYJ103	RES,M10K–J–1/10
R2466	ERJ6GEYJ224	RES,M220K–J–1/10
R2467	ERJ6GEYJ102	RES,M1K–J–1/10
R2468	ERJ6GEYJ104	RES,M100K–J–1/10
R2469	ERJ6GEYJ103	RES,M10K–J–1/10
R2472	ERJ6GEYJ102	RES,M1K–J–1/10
R2473	ERJ6GEYJ273	RES,M27K–J–1/10
R2474	ERJ6GEYJ103	RES,M10K–J–1/10
R2475	ERJ6GEYJ473	RES,M47K–J–1/10
R2476	ERJ6GEYJ473	RES,M47K–J–1/10
R2477	ERJ6GEYJ473	RES,M47K–J–1/10
R2478	ERJ6GEYJ473	RES,M47K–J–1/10
R2479	ERJ6GEYJ273	RES,M27K–J–1/10
R2480	ERJ6GEYJ103	RES,M10K–J–1/10
R2481	ERJ6GEYJ102	RES,M1K–J–1/10
R2482	ERJ6GEYJ102	RES,M1K–J–1/10
R2487	ERJ6GEYJ103	RES,M10K–J–1/10
R2511	ERDS2TJ105	RES,C1MEG–J–1/4
R2512	ERDS2TJ393	RES,C39K–J–1/4
R2513	ERDS2TJ222	RES,C2.2K–J–1/4
R2514	ERDS2TJ473	RES,C47K–J–1/4
R2515	ERDS2TJ102	RES,C1K–J–1/4
R2516	ERDS2TJ102	RES,C1K–J–1/4
R2517	ERDS2TJ102	RES,C1K–J–1/4
R2518	ERDS2TJ102	RES,C1K–J–1/4
R2519	ERDS2TJ102	RES,C1K–J–1/4
R2520	ERDS2TJ221	RES,C220–J–1/4
R2521	ERDS2TJ225	RES,C2.2MEG–J–1/4
R2522	ERDS2TJ333	RES,C33K–J–1/4
R2523	ERDS2TJ153	RES,C15K–J–1/4
R2524	ERDS2TJ102	RES,C1K–J–1/4
R2525	ERDS2TJ473	RES,C47K–J–1/4
R2526	ERDS2TJ473	RES,C47K–J–1/4
R2527	ERDS2TJ473	RES,C47K–J–1/4
R2528	ERDS2TJ473	RES,C47K–J–1/4
R2530	ERDS2TJ221	RES,C220–J–1/4
R2531	ERDS2TJ6R8	RES,C6.8–J–1/4W
R2532	ERDS2TJ682	RES,C6.8K–J–1/4
R2534	ERD25FJ2R2	RES,C2.2–J–1/4
R2535	ERDS2TJ222	RES,C2.2K–J–1/4
R2536	ERDS2TJ222	RES,C2.2K–J–1/4
R2537	ERDS2TJ102	RES,C1K–J–1/4
R2538	ERDS2TJ102	RES,C1K–J–1/4

REPLACEMENT PARTS LIST

(Models: PT–51G50U/CU/LU/PU/TU/VU, PT–51G52V/CV/LV/PV/TV/VV/XV & PT–61G52V/CV/LV/VV)

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REF. NO.	PART NO.	DESCRIPTION
R2539	ERDS2TJ182	RES,C1.8K–J–1/4
R2540	ERDS2TJ182	RES,C1.8K–J–1/4
R2541	ERDS2TJ104	RES,C100K–J–1/4
R2542	ERDS2TJ104	RES,C100K–J–1/4
R2543	ERDS2TJ104	RES,C100K–J–1/4
R2544	ERDS2TJ183	RES,C18K–J–1/4
R2545	ERDS2TJ102	RES,C1K–J–1/4
R2546	ERDS2TJ102	RES,C1K–J–1/4
R2547	ERDS2TJ471	RES,C470–J–1/4
R2548	ERDS2TJ471	RES,C470–J–1/4
R2551	ERDS2TJ6R8	RES,C6.8–J–1/4W
R2552	ERDS2TJ682	RES,C6.8K–J–1/4
R2554	ERD25FJ2R2	RES,C2.2–J–1/4
R2555	ERDS2TJ152	RES,C1.5K–J–1/4
R2556	ERDS2TJ152	RES,C1.5K–J–1/4
R2561	ERDS2TJ104	RES,C100K–J–1/4
R2562	ERDS2TJ152	RES,C1.5K–J–1/4
R2563	ERDS2TJ681	RES,C680–J–1/4
R2564	ERDS2TJ103	RES,C10K–J–1/4
R2565	ERDS2TJ393	RES,C39K–J–1/4
R2572	ERDS2TJ104	RES,C100K–J–1/4
R2573	ERDS2TJ562	RES,C5.6K–J–1/4
R2574	ERDS2TJ223	RES,C22K–J–1/4
R2575	ERDS2TJ223	RES,C22K–J–1/4
R2576	ERDS2TJ471	RES,C470–J–1/4
R2577	ERDS2TJ471	RES,C470–J–1/4
R2578	ERDS2TJ471	RES,C470–J–1/4
R2579	ERDS2TJ471	RES,C470–J–1/4
R2581	ERDS2TJ562	RES,C5.6K–J–1/4
R2582	ERDS2TJ562	RES,C5.6K–J–1/4
R2583	ERDS2TJ562	RES,C5.6K–J–1/4
R2585	ERDS2TJ101	RES,C100–J–1/4
R2588	ERDS2TJ563	RES,C56K–J–1/4
R2589	ERDS2TJ102	RES,C1K–J–1/4
R2591	ERDS2TJ101	RES,C100–J–1/4
R2592	ERDS2TJ101	RES,C100–J–1/4
R2593	ERDS2TJ101	RES,C100–J–1/4
R2594	ERDS2TJ101	RES,C100–J–1/4
R2801	ERDS1TJ104	RES,C100K–J–1/2
R2803	ERDS1FJ470	RES,C47–J–1/2
R2804	**ERX12SJR39**	**RES,M.39–J–1/2**
R2806	ERDS1FJ391	RES,C390–J–1/2
R2807	ERDS2TJ222	RES,C2.2K–J–1/4
R2808	ERDS2TJ2R7	RES,C2.7–J–1/4
R2809	ERDS2TJ103	RES,C10K–J–1/4
R2811	ER0S2CKF1371	RES,M1370–F–1/4W
R2812	ERDS2TJ104	RES,C100K–J–1/4
R2813	ERDS2TJ472	RES,C4.7K–J–1/4
R2814	ERDS2TJ471	RES,C470–J–1/4
R2816	ERDS1TJ104	RES,C100K–J–1/2
R2817	ERDS1TJ104	RES,C100K–J–1/2
R2851	ERDS2TJ102	RES,C1K–J–1/4
R2853	ERDS2TJ470	RES,C47–J–1/4
R2857	**ER0S2CKF4421**	**RES,M4.42K–F–1/4**
R2858	**ER0S2CKF1001**	**RES,M1K–F–1/4**
R3001	ERJ6GEYJ103	RES,M10K–J–1/10
R3002	ERJ6GEYJ221	RES,M220–J–1/10
R3003	ERJ6GEYJ103	RES,M10K–J–1/10
R3004	ERJ6GEYJ221	RES,M220–J–1/10
R3007	ERJ6GEYJ103	RES,M10K–J–1/10
R3008	ERJ6GEYJ221	RES,M220–J–1/10
R3009	ERJ6GEYJ103	RES,M10K–J–1/10
R3010	ERJ6GEYJ221	RES,M220–J–1/10
R3011	ERJ6GEYJ103	RES,M10K–J–1/10
R3012	ERJ6GEYJ221	RES,M220–J–1/10
R3013	ERJ6GEYJ103	RES,M10K–J–1/10
R3014	ERJ6GEYJ393	RES,M39K–J–1/10
R3015	ERJ6GEYJ393	RES,M39K–J–1/10
R3016	ERJ6GEYJ393	RES,M39K–J–1/10
R3017	ERJ6GEYJ393	RES,M39K–J–1/10
R3018	ERJ6GEYJ393	RES,M39K–J–1/10
R3019	ERJ6GEYJ393	RES,M39K–J–1/10
R3020	ERJ6GEYJ393	RES,M39K–J–1/10
R3021	ERJ6GEYJ393	RES,M39K–J–1/10
R3029	ERJ6GEYJ103	RES,M10K–J–1/10
R3030	ERJ6GEYJ221	RES,M220–J–1/10
R3031	ERJ6GEYJ103	RES,M10K–J–1/10
R3036	ERJ6GEYJ221	RES,M220–J–1/10
R3037	ERJ6GEYJ750	RES,M75–J–1/10
R3038	ERJ6GEYJ750	RES,M75–J–1/10
R3039	ERJ6GEYJ561	RES,M560–J–1/10
R3040	ERJ6GEYJ561	RES,M560–J–1/10
R3043	ERJ6GEYJ561	RES,M560–J–1/10
R3044	ERJ6GEYJ471	RES,M470–J–1/10
R3045	ERJ6GEYJ271	RES,M270–J–1/10
R3047	ERJ6GEYJ182	RES,M1.8K–J–1/10
R3051	ERJ6GEYJ562	RES,M5.6K–J–1/10
R3052	ERJ6GEYJ103	RES,M10K–J–1/10
R3053	ERJ6GEYJ471	RES,M470–J–1/10
R3054	ERJ6GEYJ332	RES,M3.3K–J–1/10
R3055	ERJ6GEYJ471	RES,M470–J–1/10
R3058	ERJ6GEYJ473	RES,M47K–J–1/10
R3059	ERJ6GEYJ332	RES,M3.3K–J–1/10
R3060	ERJ6GEYJ473	RES,M47K–J–1/10
R3061	ERJ6GEYJ332	RES,M3.3K–J–1/10
R3070	ERJ6GEYJ393	RES,M39K–J–1/10
R3071	ERJ6GEYJ393	RES,M39K–J–1/10
R3104	ERDS2TJ390	RES,C39–J–1/4
R3105	ERDS2TJ360	RES,C36–J–1/4
R3106	ERDS2TJ222	RES,C2.2K–J–1/4
R3114	ERDS2TJ390	RES,C39–J–1/4
R3115	ERDS2TJ360	RES,C36–J–1/4
R3116	ERDS2TJ222	RES,C2.2K–J–1/4
R3150	ERJ6GEYJ473	RES,M47K–J–1/10
R3151	ERJ6GEYJ103	RES,M10K–J–1/10
R3152	ERJ6GEYJ473	RES,M47K–J–1/10
R3153	ERJ6GEYJ182	RES,M1.8K–J–1/10
R3164	ERJ6GEYJ103	RES,M10K–J–1/10
R3165	ERJ6GEYJ333	RES,M33K–J–1/10
R3166	ERJ6GEYJ333	RES,M33K–J–1/10
R3167	ERJ6GEYJ103	RES,M10K–J–1/10
R3168	ERJ6GEYJ561	RES,M560–J–1/10

REPLACEMENT PARTS LIST

(Models: PT–51G50U/CU/LU/PU/TU/VU, PT–51G52V/CV/LV/PV/TV/VV/XV & PT–61G52V/CV/LV/VV)

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REF. NO.	PART NO.	DESCRIPTION
R3169	ERJ6GEYJ561	RES,M560–J–1/10
R3172	ERJ6GEYJ821	RES,M820–J–1/10
R3173	ERJ6GEYJ561	RES,M560–J–1/10
R3174	ERJ6GEYJ102	RES,M1K–J–1/10
R3175	ERJ6GEYJ471	RES,M470–J–1/10
R3221	ERJ6GEYJ333	RES,M33K–J–1/10
R3222	ERJ6GEYJ123	RES,M12K–J–1/10
R3223	ERJ6GEYJ471	RES,M470–J–1/10
R3226	ERJ6GEYJ331	RES,M330–J–1/10
R3228	ERJ6GEYJ122	RES,M1.2K–J–1/10
R3229	ERJ6GEYJ471	RES,M470–J–1/10
R3230	ERJ6GEYJ561	RES,M560–J–1/10
R3243	ERJ6GEYJ102	RES,M1K–J–1/10
R3244	ERJ6GEYJ102	RES,M1K–J–1/10
R3245	ERJ6GEYJ561	RES,M560–J–1/10
R3247	ERJ6GEYJ181	RES,M180–J–1/10
R3248	ERJ6GEYJ181	RES,M180–J–1/10
R3249	ERJ6GEYJ181	RES,M180–J–1/10
R3250	ERJ6GEYJ181	RES,M180–J–1/10
R3251	ERJ6GEYJ102	RES,M1K–J–1/10
R3255	ERJ6GEYJ471	RES,M470–J–1/10
R3256	ERJ6ENF1002	RES,M10K–F–1/10
R3257	ERJ6GEYJ224	RES,M220K–J–1/10
R3258	ERJ6GEYJ473	RES,M47K–J–1/10
R3259	ERJ6GEYJ473	RES,M47K–J–1/10
R3260	ERJ6ENF6800	RES,M680–F–1/10
R3261	ERJ6ENF1101	RES,M1.1K–F–1/10
R3262	ERJ6ENF2203	RES,M220K–F–1/10
R3263	ERJ6GEYJ102	RES,M1K–J–1/10
R3264	ERJ6GEYJ333	RES,M33K–J–1/10
R3265	ERJ6GEYJ332	RES,M3.3K–J–1/10
R3266	ERJ6GEYJ102	RES,M1K–J–1/10
R3267	ERJ6ENF4701	RES,M4.7K–F–1/10
R3268	ERJ6ENF5110	RES,M511–F–1/10
R3269	ERJ6GEYJ102	RES,M1K–J–1/10
R3270	ERJ6GEYJ103	RES,M10K–J–1/10
R3271	ERJ6GEYJ104	RES,M100K–J–1/10
R3272	ERJ6GEYJ471	RES,M470–J–1/10
R3273	ERJ6GEYJ222	RES,M2.2K–J–1/10
R3274	ERJ6GEYJ471	RES,M470–J–1/10
R3275	ERJ6GEYJ561	RES,M560–J–1/10
R3276	ERJ6GEYJ561	RES,M560–J–1/10
R3277	ERJ6GEYJ471	RES,M470–J–1/10
R3278	ERJ6GEYJ681	RES,M680–J–1/10
R3279	ERJ6GEYJ471	RES,M470–J–1/10
R3280	ERJ6GEYJ102	RES,M1K–J–1/10
R3281	ERJ6GEYJ222	RES,M2.2K–J–1/10
R3282	ERJ6GEYJ124	RES,M120K–J–1/10
R3283	ERJ6GEYJ222	RES,M2.2K–J–1/10
R3285	ERJ6GEYJ222	RES,M2.2K–J–1/10
R3286	ERJ6GEYJ221	RES,M220–J–1/10
R3287	ERJ6GEYJ221	RES,M220–J–1/10
R3290	ERJ6GEYJ102	RES,M1K–J–1/10
R3291	ERJ6GEYJ753	RES,M75K–J–1/10
R3292	ERJ6GEYJ823	RES,M82K–J–1/10
R3293	ERJ6GEYJ102	RES,M1K–J–1/10
R3294	ERJ6GEYJ431	RES,M430–J–1/10
R3295	ERJ6GEYJ391	RES,M390–J–1/10
R3296	ERJ6GEYJ223	RES,M22K–J–1/10
R3298	ERJ6GEYJ103	RES,M10K–J–1/10
R3299	ERJ6GEYJ105	RES,M1.0MEG–J–1/10
R3301	ERJ6GEYJ101	RES,M100–J–1/10
R3302	ERJ6GEYJ101	RES,M100–J–1/10
R3303	ERJ6GEYJ101	RES,M100–J–1/10
R3304	ERJ6ENF4021	RES,M4.02K–F–1/10
R3305	ERJ6GEYJ223	RES,M22K–J–1/10
R3306	ERJ6GEYJ333	RES,M33K–J–1/10
R3307	ERJ6GEYJ152	RES,M1.5K–J–1/10
R3308	ERJ6GEYJ223	RES,M22K–J–1/10
R3309	ERJ6GEYJ103	RES,M10K–J–1/10
R3310	ERJ6GEYJ271	RES,M270–J–1/10
R3311	ERJ6GEYJ681	RES,M680–J–1/10
R3312	ERJ6GEYJ152	RES,M1.5K–J–1/10
R3313	ERJ6GEYJ102	RES,M1K–J–1/10
R3314	ERJ6GEYJ681	RES,M680–J–1/10
R3315	ERJ6GEYJ271	RES,M270–J–1/10
R3316	ERJ6GEYJ561	RES,M560–J–1/10
R3317	ERJ6GEYJ273	RES,M27K–J–1/10
R3318	ERJ6GEYJ103	RES,M10K–J–1/10
R3319	ERJ6GEYJ303	RES,M30K–J–1/10
R3320	ERJ6GEYJ471	RES,M470–J–1/10
R3321	ERJ6GEYJ153	RES,M15K–J–1/10
R3322	ERJ6GEYJ273	RES,M27K–J–1/10
R3323	ERJ6GEYJ102	RES,M1K–J–1/10
R3324	ERJ6GEYJ102	RES,M1K–J–1/10
R3325	ERJ6GEYJ682	RES,M6.8K–J–1/10
R3326	ERJ6GEYJ393	RES,M39K–J–1/10
R3327	ERJ6GEYJ683	RES,M68K–J–1/10
R3328	ERJ6ENF5231	RES,M5.23K–F–1/10
R3329	ERJ6ENF2871	RES,M2.87K–F–1/10
R3330	ERJ6GEYJ752	RES,M7.5K–J–1/10
R3331	ERJ6GEYJ222	RES,M2.2K–J–1/10
R3332	ERJ6GEYJ102	RES,M1K–J–1/10
R3333	ERJ6GEYJ823	RES,M82K–J–1/10
R3334	ERJ6GEYJ104	RES,M100K–J–1/10
R3335	ERJ6GEYJ124	RES,M120K–J–1/10
R3336	ERJ6GEYJ153	RES,M15K–J–1/10
R3337	ERJ6GEYJ682	RES,M6.8K–J–1/10
R3338	ERJ6GEYJ333	RES,M33K–J–1/10
R3339	ERJ6GEYJ182	RES,M1.8K–J–1/10
R3340	ERJ6GEYJ103	RES,M10K–J–1/10
R3341	ERJ6GEYJ822	RES,M8.2K–J–1/10
R3342	ERJ6GEYJ332	RES,M3.3K–J–1/10
R3343	ERJ6GEYJ474	RES,M470K–J–1/10
R3344	ERJ6GEYJ513	RES,M51K–J–1/10
R3346	ERJ6GEYJ153	RES,M15K–J–1/10
R3347	ERJ6GEYJ333	RES,M33K–J–1/10
R3348	ERJ6GEYJ102	RES,M1K–J–1/10
R3350	ERJ6GEYJ181	RES,M180–J–1/10
R3351	ERJ6GEYJ152	RES,M1.5K–J–1/10
R3352	ERJ6GEYJ222	RES,M2.2K–J–1/10
R3353	ERJ6GEYJ222	RES,M2.2K–J–1/10

REPLACEMENT PARTS LIST

(Models: PT–51G50U/CU/LU/PU/TU/VU, PT–51G52V/CV/LV/PV/TV/VV/XV & PT–61G52V/CV/LV/VV)

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REF. NO.	PART NO.	DESCRIPTION
R4652	ERJ6GEYJ392	RES,M3.9K–J–1/10
R4681	ERJ6GEYJ162	RES,M1.6K–J–1/10
R4682	ERJ6GEYJ201	RES,M200–J–1/10
R4683	ERJ6GEYJ362	RES,M3.6K–J–1/10
R4684	ERJ6GEYJ911	RES,M910–J–1/10
R4701	ERJ6GEYJ201	RES,M200–J–1/10
R4702	ERJ6GEYJ153	RES,M15K–J–1/10
R4703	ERJ6GEYJ103	RES,M10K–J–1/10
R4704	ERJ6GEYJ102	RES,M1K–J–1/10
R4705	ERJ6GEYJ102	RES,M1K–J–1/10
R4706	ERJ6GEYJ102	RES,M1K–J–1/10
R4707	ERJ6GEYJ221	RES,M220–J–1/10
R4708	ERJ6GEYJ221	RES,M220–J–1/10
R4710	ERJ6GEYJ222	RES,M2.2K–J–1/10
R4711	ERJ6GEYJ221	RES,M220–J–1/10
R4712	ERJ6GEYJ102	RES,M1K–J–1/10
R4716	ERJ6GEYJ561	RES,M560–J–1/10
R4718	ERJ6GEYJ390	RES,M39–J–1/10
R4719	ERJ6GEYJ561	RES,M560–J–1/10
R4721	ERJ6GEYJ561	RES,M560–J–1/10
R4751	ERJ6GEYJ153	RES,M15K–J–1/10
R4752	ERJ6GEYJ103	RES,M10K–J–1/10
R4753	ERJ6GEYJ102	RES,M1K–J–1/10
R4754	ERJ6GEYJ102	RES,M1K–J–1/10
R4755	ERJ6GEYJ102	RES,M1K–J–1/10
R4756	ERJ6GEYJ221	RES,M220–J–1/10
R4757	ERJ6GEYJ221	RES,M220–J–1/10
R4759	ERJ6GEYJ122	RES,M1.2K–J–1/10
R4760	ERJ6GEYJ151	RES,M150–J–1/10
R4761	ERJ6GEYJ681	RES,M680–J–1/10
R4792	ERJ6GEYJ470	RES,M47–J–1/10
R4793	ERJ6GEYJ470	RES,M47–J–1/10
R6500	ERJ6ENF1500	RES,M150–F–1/10
R6501	ERJ6ENF1303	RES,M130K–F–1/10
R6502	ERJ6ENF1303	RES,M130K–F–1/10
R6503	ERJ6ENF2002	RES,M20K–F–1/10
R6504	ERJ6ENF4992	RES,M49.9K–F–1/10
R6505	ERJ6ENF1273	RES,M127K–F–1/10
R6506	ERJ6ENF4992	RES,M49.9K–F–1/10
R6507	ERJ6ENF1273	RES,M127K–F–1/10
R6508	ERJ6ENF6652	RES,M66.5K–F–1/10
R6509	ERJ6ENF4702	RES,M47K–F–1/10
R6510	ERJ6GEYJ103	RES,M10K–J–1/10
R6511	ERJ6ENF1003	RES,M100K–F–1/10
R6512	ERJ6ENF3302	RES,M33K–F–1/10
R6513	ERJ6GEYJ105	RES,M1.0MEG–J–1/10
R6514	ERJ6ENF2002	RES,M20K–F–1/10
R6515	ERJ6GEYJ273	RES,M27K–J–1/10
R6516	ERJ6ENF4702	RES,M47K–F–1/10
R6517	ERJ6GEYJ102	RES,M1K–J–1/10
R6518	ERJ6GEYJ332	RES,M3.3K–J–1/10
R6519	ERJ6ENF1002	RES,M10K–F–1/10
R6520	ERJ6GEYJ333	RES,M33K–J–1/10
R6521	ERJ6ENF2001	RES,M2K–F–1/10
R6522	ERJ6GEYJ332	RES,M3.3K–J–1/10
R6523	ERJ6GEYJ102	RES,M1K–J–1/10
R6524	ERJ6ENF4701	RES,M4.7K–F–1/10
R6525	ERJ6GEYJ102	RES,M1K–J–1/10
R6526	ERJ6ENF1002	RES,M10K–F–1/10
R6527	ERJ6ENF1001	RES,M1K–F–1/10
R6528	ERJ6ENF1001	RES,M1K–F–1/10
R6529	ERJ6ENF2001	RES,M2K–F–1/10
R6530	ERJ6GEYJ102	RES,M1K–J–1/10
R6531	ERJ6ENF2871	RES,M2.87K–F–1/10
R6532	ERJ6ENF3480	RES,M3.48K–F–1/10
R6533	ERJ6GEYJ124	RES,M120K–J–1/10
R6534	ERJ6GEYJ105	RES,M1.0MEG–J–1/10
R6535	ERJ6GEYJ563	RES,M56K–J–1/10
R6536	ERJ6GEYJ471	RES,M470–J–1/10
R6537	ERJ6GEYJ332	RES,M3.3K–J–1/10
R6538	ERJ6GEYJ132	RES,M1.3K–J–1/10
R6539	ERJ6GEYJ362	RES,M3.6K–J–1/10
R6540	ERJ6GEYJ332	RES,M3.3K–J–1/10
R6541	ERJ6ENF2002	RES,M20K–F–1/10
R6542	ERJ6GEYJ302	RES,M3K–J–1/10
R6543	ERJ6GEYJ202	RES,M2K–J–1/10
R6544	ERJ6ENF1002	RES,M10K–F–1/10
R6545	ERJ6GEYJ471	RES,M470–J–1/10
R6547	ERJ6ENF3902	RES,M39K–F–1/10
R6548	ERJ6GEYJ682	RES,M6.8K–J–1/10
R7001	ERJ6GEYJ153	RES,M15K–J–1/10
R7002	ERJ6GEYJ683	RES,M68K–J–1/10
R7003	ERJ6GEYJ822	RES,M8.2K–J–1/10
R7004	ERJ6GEYJ682	RES,M6.8K–J–1/10
R7005	ERJ6GEYJ821	RES,M820–J–1/10
R7018	ERJ6GEYJ102	RES,M1K–J–1/10
R7019	ERJ6GEYJ102	RES,M1K–J–1/10
R7020	ERJ6GEYJ102	RES,M1K–J–1/10
R7021	ERJ6GEYJ102	RES,M1K–J–1/10
R7022	ERJ6GEYJ102	RES,M1K–J–1/10
R7023	ERJ6GEYJ102	RES,M1K–J–1/10
R7024	ERJ6GEYJ332	RES,M3.3K–J–1/10
R7025	ERJ6GEYJ332	RES,M3.3K–J–1/10
R7026	ERJ6GEYJ332	RES,M3.3K–J–1/10
R7027	ERJ6GEYJ332	RES,M3.3K–J–1/10
R7028	ERJ6GEYJ332	RES,M3.3K–J–1/10
R7029	ERJ6GEYJ332	RES,M3.3K–J–1/10
R7030	ER0S2CKF10R0	RES,M10K–F–1/4
R7031	ER0S2CKF10R0	RES,M10K–F–1/4
R7032	ER0S2CKF10R0	RES,M10K–F–1/4
R7033	ER0S2CKF10R0	RES,M10K–F–1/4
R7034	ER0S2CKF10R0	RES,M10K–F–1/4
R7035	ER0S2CKF10R0	RES,M10K–F–1/4
R7036	ER0S2CKF10R0	RES,M10K–F–1/4
R7037	ER0S2CKF10R0	RES,M10K–F–1/4
R7038	ER0S2CKF10R0	RES,M10K–F–1/4
R7039	ER0S2CKF10R0	RES,M10K–F–1/4
R7040	ER0S2CKF10R0	RES,M10K–F–1/4
R7041	ER0S2CKF10R0	RES,M10K–F–1/4
R7048	ERG1SJ271P	RES,M270–J–1W
R7049	ERG1SJ271P	RES,M270–J–1W
R7050	ERG1SJ271P	RES,M270–J–1W

REPLACEMENT PARTS LIST

(Models: PT–51G50U/CU/LU/PU/TU/VU, PT–51G52V/CV/LV/PV/TV/VV/XV & PT–61G52V/CV/LV/VV)

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REF. NO.	PART NO.	DESCRIPTION
R7051	ERG1SJ271P	RES,M270–J–1W
R7052	ERG1SJ271P	RES,M270–J–1W
R7053	ERG1SJ271P	RES,M270–J–1W
R7060	ERX1SJR39	RES,M.39–J–1W
R7061	ERX1SJR39	RES,M.39–J–1W
R7062	ERJ6GEYJ102	RES,M1K–J–1/10
R7063	ERJ6GEYJ273	RES,M27K–J–1/10
R7064	ERJ6GEYJ102	RES,M1K–J–1/10
R7065	ERJ6GEYJ222	RES,M2.2K–J–1/10
R7066	ERJ6GEYJ562	RES,M5.6K–J–1/10
R7070	ER0S2CKF10R0	RES,M10K–F–1/4
R7071	ER0S2CKF10R0	RES,M10K–F–1/4
R7072	ER0S2CKF10R0	RES,M10K–F–1/4
R7073	ER0S2CKF10R0	RES,M10K–F–1/4
R7074	ER0S2CKF10R0	RES,M10K–F–1/4
R7075	ER0S2CKF10R0	RES,M10K–F–1/4
R7082	ERJ6GEYJ471	RES,M470–J–1/10
R7083	ERJ6GEYJ392	RES,M3.9K–J–1/10
R7084	ERJ6GEYJ123	RES,M12K–J–1/10
R7085	ERJ6GEYJ682	RES,M6.8K–J–1/10
R7086	ERJ6GEYJ682	RES,M6.8K–J–1/10
R7087	ERJ6GEYJ223	RES,M22K–J–1/10
R7088	ERJ6GEYJ563	RES,M56K–J–1/10
R7089	ERJ6GEYJ563	RES,M56K–J–1/10
R7092	ERJ6GEYJ274	RES,M270K–J–1/10
R7093	ERJ6GEYJ274	RES,M270K–J–1/10
R7094	ERJ6GEYJ274	RES,M270K–J–1/10
R7095	ERJ6GEYJ474	RES,M470K–J–1/10
R7096	ERJ6GEYJ683	RES,M68K–J–1/10
R7097	ERJ6GEYJ472	RES,M4.7K–J–1/10
R7099	ERJ6GEYJ472	RES,M4.7K–J–1/10
R7102	ERJ6GEYJ221	RES,M220–J–1/10
R7103	ERJ6GEYJ331	RES,M330–J–1/10
R7104	ERJ6GEYJ331	RES,M330–J–1/10
R7105	ERJ6GEYJ221	RES,M220–J–1/10
R7106	ERJ6GEYJ331	RES,M330–J–1/10
R7120	ERJ6GEYJ103	RES,M10K–J–1/10
R7125	ERJ6GEYJ103	RES,M10K–J–1/10
R7126	ERJ6GEYJ684	RES,M680K–J–1/10
R7127	ERJ6GEYJ103	RES,M10K–J–1/10
R7130	ERJ6GEYJ103	RES,M10K–J–1/10
R7131	ERJ6GEYJ103	RES,M10K–J–1/10
R7132	ERJ6GEYJ392	RES,M3.9K–J–1/10
R7134	ERJ6GEYJ103	RES,M10K–J–1/10
R7136	ERJ6GEYJ103	RES,M10K–J–1/10
R7137	ERJ6GEYJ272	RES,M2.7K–J–1/10
R7138	ERJ6GEYJ682	RES,M6.8K–J–1/10
R7140	ERJ6GEYJ103	RES,M10K–J–1/10
R7141	ERJ6GEYJ103	RES,M10K–J–1/10
R7143	ERJ6GEYJ101	RES,M100–J–1/10
R7144	ERJ6GEYJ101	RES,M100–J–1/10
R7145	ERJ6GEYJ103	RES,M10K–J–1/10
R7146	ERJ6GEYJ103	RES,M10K–J–1/10
R7147	ERJ6GEYJ103	RES,M10K–J–1/10
R7148	ERJ6GEYJ103	RES,M10K–J–1/10
R7149	ERJ6GEYJ103	RES,M10K–J–1/10
R7150	ERJ6GEYJ103	RES,M10K–J–1/10
R7152	ERJ6GEYJ103	RES,M10K–J–1/10
R7154	ERJ6GEYJ103	RES,M10K–J–1/10
R7155	ERJ6GEYJ103	RES,M10K–J–1/10
R7157	ERJ6GEYJ103	RES,M10K–J–1/10
R7158	ERJ6GEYJ103	RES,M10K–J–1/10
R7159	ERJ6GEYJ103	RES,M10K–J–1/10
R7160	ERJ6GEYJ103	RES,M10K–J–1/10
R7162	ERJ6GEYJ103	RES,M10K–J–1/10
R7163	ERJ6GEYJ153	RES,M15K–J–1/10
R7164	ERJ6GEYJ153	RES,M15K–J–1/10
R7165	ERJ6GEYJ103	RES,M10K–J–1/10
R7166	ERJ6ENF1102	RES,M11K–F–1/10W
R7168	ERJ6GEYJ103	RES,M10K–J–1/10
R7169	ERJ6GEYJ103	RES,M10K–J–1/10
R7170	ERJ6GEYJ103	RES,M10K–J–1/10
R7174	ERJ6GEYJ103	RES,M10K–J–1/10
R7177	ERJ6GEYJ103	RES,M10K–J–1/10
R7178	ERJ6GEYJ103	RES,M10K–J–1/10
R7181	ERJ6GEYJ472	RES,M4.7K–J–1/10
R7182	ERJ6GEYJ472	RES,M4.7K–J–1/10
R7183	ERJ6GEYJ472	RES,M4.7K–J–1/10
R7184	ERJ6GEYJ102	RES,M1K–J–1/10
R7185	ERJ6GEYJ102	RES,M1K–J–1/10
R7186	ERJ6GEYJ102	RES,M1K–J–1/10
R7188	ERJ6GEYJ103	RES,M10K–J–1/10
R7190	ERJ6GEYJ473	RES,M47K–J–1/10
R7191	ERJ6GEYJ103	RES,M10K–J–1/10
R7194	ERJ6GEYJ103	RES,M10K–J–1/10
R7195	ERJ6GEYJ103	RES,M10K–J–1/10
R7196	ERJ6GEYJ103	RES,M10K–J–1/10
R7197	ERJ6GEYJ103	RES,M10K–J–1/10
R7198	ERJ6GEYJ103	RES,M10K–J–1/10
R7199	ERJ6GEYJ103	RES,M10K–J–1/10
R7200	ERJ6GEYJ103	RES,M10K–J–1/10
R7201	ERJ6GEYJ103	RES,M10K–J–1/10
R7202	ERJ6GEYJ103	RES,M10K–J–1/10
R7203	ERJ6GEYJ103	RES,M10K–J–1/10
R7204	ERJ6GEYJ103	RES,M10K–J–1/10
R7205	ERJ6GEYJ103	RES,M10K–J–1/10
R7206	ERJ6GEYJ103	RES,M10K–J–1/10
R7207	ERJ6GEYJ103	RES,M10K–J–1/10
R7208	ERJ6GEYJ103	RES,M10K–J–1/10
R7209	ERJ6GEYJ103	RES,M10K–J–1/10
R7210	ERJ6GEYJ103	RES,M10K–J–1/10
R7211	ERJ6GEYJ103	RES,M10K–J–1/10
R7212	ERJ6GEYJ103	RES,M10K–J–1/10
R7213	ERJ6GEYJ103	RES,M10K–J–1/10
R7214	ERJ6GEYJ103	RES,M10K–J–1/10
R7215	ERJ6GEYJ103	RES,M10K–J–1/10
R7216	ERJ6GEYJ103	RES,M10K–J–1/10
R7217	ERJ6GEYJ103	RES,M10K–J–1/10
R7218	ERJ6GEYJ103	RES,M10K–J–1/10
R7219	ERJ6GEYJ103	RES,M10K–J–1/10
R7220	ERJ6GEYJ103	RES,M10K–J–1/10
R7221	ERJ6GEYJ103	RES,M10K–J–1/10

REPLACEMENT PARTS LIST

(Models: PT–51G50U/CU/LU/PU/TU/VU, PT–51G52V/CV/LV/PV/TV/VV/XV & PT–61G52V/CV/LV/VV)

Important Safety Notice: Components printed in **BOLD TYPE** have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.

REF. NO.	PART NO.	DESCRIPTION
R7222	ERJ6GEYJ103	RES,M10K–J–1/10
R7223	ERJ6GEYJ103	RES,M10K–J–1/10
R7224	ERJ6GEYJ223	RES,M22K–J–1/10
R7225	ERJ6GEYJ223	RES,M22K–J–1/10
R7226	ERJ6GEYJ223	RES,M22K–J–1/10
R7227	ERJ6GEYJ223	RES,M22K–J–1/10
R7228	ERJ6GEYJ223	RES,M22K–J–1/10
R7229	ERJ6GEYJ223	RES,M22K–J–1/10
R7230	ERJ6GEYJ103	RES,M10K–J–1/10
R7231	ERJ6GEYJ103	RES,M10K–J–1/10
R7232	ERJ6GEYJ103	RES,M10K–J–1/10
R7233	ERJ6GEYJ103	RES,M10K–J–1/10
R7234	ERJ6GEYJ103	RES,M10K–J–1/10
R7235	ERJ6GEYJ103	RES,M10K–J–1/10
R7237	ERJ6GEYJ221	RES,M220–J–1/10
R7238	ERJ6GEYJ221	RES,M220–J–1/10
R7239	ERJ6GEYJ221	RES,M220–J–1/10
R7240	ERJ6GEYJ221	RES,M220–J–1/10
R7241	ERJ6ENF1002	RES,M10K–F–1/10
R7242	ERJ6GEYJ102	RES,M1K–J–1/10
R7243	ERJ6GEYJ102	RES,M1K–J–1/10
R7244	ERJ6GEYJ223	RES,M22K–J–1/10
R7245	ERJ6GEYJ102	RES,M1K–J–1/10
R7246	ERJ6GEYJ223	RES,M22K–J–1/10
R7247	ERJ6GEYJ102	RES,M1K–J–1/10
R7248	ERJ6GEYJ223	RES,M22K–J–1/10
R7249	ERJ6GEYJ102	RES,M1K–J–1/10
R7250	ERJ6GEYJ102	RES,M1K–J–1/10
R7251	ERJ6GEYJ102	RES,M1K–J–1/10
R7252	ERJ6GEYJ223	RES,M22K–J–1/10
R7253	ERJ6GEYJ223	RES,M22K–J–1/10
R7254	ERJ6GEYJ223	RES,M22K–J–1/10
R7256	ERJ6GEYJ331	RES,M330–J–1/10
R7257	ERJ6GEYJ331	RES,M330–J–1/10
R7258	ERJ6GEYJ331	RES,M330–J–1/10
R7260	ERJ6GEYJ331	RES,M330–J–1/10
R7261	ERJ6GEYJ331	RES,M330–J–1/10
R7262	ERJ6GEYJ331	RES,M330–J–1/10
R7265	ERJ6GEYJ102	RES,M1K–J–1/10
R7266	ERJ6GEYJ222	RES,M2.2K–J–1/10
R7267	ERJ6GEYJ152	RES,M1.5K–J–1/10
R7268	ERJ6GEYJ152	RES,M1.5K–J–1/10
R7269	ERJ6GEYJ152	RES,M1.5K–J–1/10
R7270	ERJ6GEYJ152	RES,M1.5K–J–1/10
R7271	ERJ6GEYJ152	RES,M1.5K–J–1/10
R7272	ERJ6GEYJ152	RES,M1.5K–J–1/10
R7274	ERJ6GEYJ103	RES,M10K–J–1/10
R7275	ERJ6GEYJ152	RES,M1.5K–J–1/10
R7276	ERJ6GEYJ103	RES,M10K–J–1/10
R7277	ERJ6GEYJ152	RES,M1.5K–J–1/10
R7278	ERJ6GEYJ103	RES,M10K–J–1/10
R7279	ERJ6GEYJ152	RES,M1.5K–J–1/10
R7280	ERJ6GEYJ103	RES,M10K–J–1/10
R7281	ERJ6GEYJ152	RES,M1.5K–J–1/10
R7282	ERJ6GEYJ103	RES,M10K–J–1/10
R7283	ERJ6GEYJ152	RES,M1.5K–J–1/10
R7284	ERJ6GEYJ103	RES,M10K–J–1/10
R7285	ERJ6GEYJ152	RES,M1.5K–J–1/10
R7286	ERJ6GEYJ102	RES,M1K–J–1/10
R7287	ERJ6GEYJ332	RES,M3.3K–J–1/10
R7288	ERJ6GEYJ332	RES,M3.3K–J–1/10
R7289	ERJ6GEYJ222	RES,M2.2K–J–1/10
R7290	ERJ6GEYJ332	RES,M3.3K–J–1/10
R7291	ERJ6GEYJ102	RES,M1K–J–1/10
R7292	ERJ6GEYJ102	RES,M1K–J–1/10
R7293	ERJ6GEYJ102	RES,M1K–J–1/10
R7295	ERJ6GEYJ102	RES,M1K–J–1/10
R7296	ERJ6GEYJ222	RES,M2.2K–J–1/10
R7298	ERJ6GEYJ332	RES,M3.3K–J–1/10
R7299	ERJ6GEYJ332	RES,M3.3K–J–1/10
R7300	ERJ6GEYJ332	RES,M3.3K–J–1/10
R7301	ERJ6GEYJ102	RES,M1K–J–1/10
R7302	ERJ6GEYJ332	RES,M3.3K–J–1/10
R7303	ERJ6GEYJ102	RES,M1K–J–1/10
R7304	ERJ6GEYJ102	RES,M1K–J–1/10
R7305	ERJ6GEYJ391	RES,M390–J–1/10
R7306	ERJ6GEYJ102	RES,M1K–J–1/10
R7307	ERJ6GEYJ102	RES,M1K–J–1/10
R7308	ERJ6GEYJ102	RES,M1K–J–1/10
R7309	ERJ6GEYJ102	RES,M1K–J–1/10
R7310	ERJ6GEYJ102	RES,M1K–J–1/10
R7311	ERJ6GEYJ102	RES,M1K–J–1/10
R7312	ERJ6GEYJ103	RES,M10K–J–1/10
R7327	ERJ6GEYJ221	RES,M220–J–1/10
R7328	ERJ6GEYJ221	RES,M220–J–1/10
R7329	ERJ6GEYJ221	RES,M220–J–1/10
R7330	ERJ6GEYJ221	RES,M220–J–1/10
R7331	ERJ6GEYJ103	RES,M10K–J–1/10
R7332	ERJ6GEYJ103	RES,M10K–J–1/10
R7333	ERJ6GEYJ103	RES,M10K–J–1/10
R7334	ERJ6GEYJ103	RES,M10K–J–1/10
		SWITCHES
S010	EVQQVC13T	SWITCH
S011	EVQQVC13T	SWITCH
S012	EVQQVC13T	SWITCH
S013	EVQQVC13T	SWITCH
S014	EVQQVC13T	SWITCH
S015	EVQQVC13T	SWITCH
S016	EVQQVC13T	SWITCH
		TRANSFORMERS
T501	**ETH19Y70AYM**	**TRANSFORMER, HORIZONTAL DRIVER**
T551	**TLFA00330**	**TRANSFORMER, FLYBACK**
T801	**TLP16297**	**TRANSFORMER, POWER SUPPLY**
T802	**ETS49AG1R5NC**	**TRANSFORMER**
T2801	**ETS29AD3E5AC**	**TRANSFORMER, SWITCH MODE POWER**
		CRYSTALS/FILTERS
X001	TSS2080MX	CRYSTAL, 12 MHZ CLOCK
X101	EFCKM1963M	CERAMIC FILTER
X102	EFCWS4504AB	FILTER 4.5MHZ
X201	EFCS4R5MS4W	FILTER 4.5MHZ BANDPASS

REPLACEMENT PARTS LIST

(Models: PT–51G50U/CU/LU/PU/TU/VU, PT–51G52V/CV/LV/PV/TV/VV/XV & PT–61G52V/CV/LV/VV)

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REF. NO.	PART NO.	DESCRIPTION
X501	TAFCSB503F38	CRYSTAL, CLOCK
X601	TSS816MX	CRYSTAL 3.58MHZ OSCILLATOR
X2002	EFCWS4504AB	FILTER 4.5MHZ
X2003	EFCKM1958M	CERAMIC FILTER
X2511	TAF10059	CERAMIC RESONATOR
X4351	TSSA050	CRYSTAL OSCILLATOR
X4501	TSS2159–B	CRYSTAL, 14.318 MH Y/C SEPARATION
X4502	TAFCSB503F35	CRYSTAL
X7101	EF0EC2005D4	CRYSTAL OSCILLATOR
		OTHERS
RM001	RPM–637CBRS1	IR RECEIVER, REMOTE CONTROL
M001	TNQ2AE003–1	REMOTE CONTROL
M002	TKP2AA00501	BATTERY COVER, REMOTE
M003	**ENPE623**	**EF SPLITTER**
TNR001	**ENV56D02G3**	**TUNER**
TNR002	**ENV56D02G3**	**TUNER**
M004	TBL2A3106	CASTER *PT–51G52V PT–51G52LV* *PT–51G52PV PT–51G52TV* *PT–51G52VV PT–51G52XV* *PT–61G52V PT–61G52CV* *PT–61G52LV PT–61G52VV*
M005	TBL2A3351	FOOT, PLASTIC *PT–51G50U PT–51G50LU* *PT–51G50PU PT–51G50TU* *PT–51G50VU*
M006	TBM2AA0011	BADGE, PANANSONIC
M007	TBX2A50191G	ASSY, 7 PUSHBUTTON
M008	TEK6935	DOOR, CATCH *PT–51G50U PT–51G50CU* *PT–51G50LU PT–51G50PU* *PT–51G50TU PT–51G50VU* *PT–61G52V PT–61G52CV* *PT–61G52LV PT–61G52VV*
M009	TES6162	SPRING, CLIP
M010	TES6183	RETAINER V OUT IC
M011	**TJS1A5160**	**CRT SOCKET**
M012	TJS3A8010	CONNECTOR
M013	TKB2AA0071M	CABINET WOOD PTV *PT–51G52V PT–51G52LV* *PT–51G52PV PT–51G52TV* *PT–51G52VV PT–51G52XV*
M014	TKB2AA0081M	CABINET, WOOD PTV *PT–61G52V PT–61G52CV* *PT–61G52LV PT–61G52VV*
M015	TKB2A28141M	CABINET, WOOD PTV *PT–51G50U PT–51G50LU* *PT–51G50PU PT–51G50TU* *PT–51G50VU*
M016	TKD2AB0021	FRONT COVER *PT–51G50U PT–51G50CU* *PT–51G50LU PT–51G50PU* *PT–51G50TU PT–51G50VU*
M017	TKD2AB0031	FRONT COVER *PT–51G52V PT–51G52CV* *PT–51G52LV PT–51G52PV* *PT–51G52TV PT–51G52VV* *PT–51G52XV*
M018	TKD2AB0041	FRONT COVER *PT–61G52V PT–61G52CV* *PT–61G52LV PT–61G52VV*
M019	TKG2AF5003	A/B LENS
M020	TKG2AH50041	SCREEN, LENTICULAR *PT–61G52V PT–61G52CV* *PT–61G52LV PT–61G52VV*
M021	TKG2AH50091	SCREEN, LENTICULAR *PT–51G50U PT–51G50CU* *PT–51G50LU PT–51G50PU* *PT–51G50TU PT–51G50VU* *PT–51G52V PT–51G52CV* *PT–51G52LV PT–51G52PV* *PT–51G52TV PT–51G52VV* *PT–51G52XV*
M022	TES2A10141	SCREEN FRAME SPRING *PT–51G50U PT–51G50CU* *PT–51G50LU PT–51G50PU* *PT–51G50TU PT–51G50VU* *PT–51G52V PT–51G52CV* *PT–51G52LV PT–51G52PV* *PT–51G52TV PT–51G52VV* *PT–51G52XV*
M023	TXFKG0296SER	ASSY, SCREEN FRAME *PT–51G50U PT–51G50CU* *PT–51G50LU PT–51G50PU* *PT–51G50TU PT–51G50VU*
M024	TXFKG0396SER	ASSY, SCREEN PANEL *PT–51G50U PT–51G50CU* *PT–51G50LU PT–51G50PU* *PT–51G50TU PT–51G50VU* *PT–51G52V PT–51G52CV* *PT–51G52LV PT–51G52PV* *PT–51G52TV PT–51G52VV* *PT–51G52XV*
M025	TXFKG1097SER	ASSY, SCREEN FRAME *PT–51G52V PT–51G52CV* *PT–51G52LV PT–51G52PV* *PT–51G52TV PT–51G52VV* *PT–51G52XV*
M026	TXFKG1197SER	ASSY, SCREEN (FRESNEL) *PT–51G50U PT–51G50CU* *PT–51G50LU PT–51G50PU* *PT–51G50TU PT–51G50VU* *PT–51G52V PT–51G52CV* *PT–51G52LV PT–51G52PV* *PT–51G52TV PT–51G52VV* *PT–51G52XV*
M027	TXFKG1297SER	ASSY, SCREEN FRAME *PT–61G52V PT–61G52CV* *PT–61G52LV PT–61G52VV*

REPLACEMENT PARTS LIST

(Models: PT–51G50U/CU/LU/PU/TU/VU, PT–51G52V/CV/LV/PV/TV/VV/XV & PT–61G52V/CV/LV/VV)

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REF. NO.	PART NO.	DESCRIPTION
M028	TXFKG1397SER	ASSY, SCREEN (FRESNEL) *PT–61G52V PT–61G52CV* *PT–61G52LV PT–61G52VV*
M029	TXFKG1497SER	ASSY, SCREEN PANEL *PT–61G52V PT–61G52CV* *PT–61G52LV PT–61G52VV*
M030	TKG2A20116–1	MIRROR *PT–51G50U PT–51G50CU* *PT–51G50LU PT–51G50PU* *PT–51G50TU PT–51G50VU* *PT–51G52V PT–51G52CV* *PT–51G52LV PT–51G52PV* *PT–51G52TV PT–51G52VV* *PT–51G52XV*
M031	TKG2A20117	MIRROR *PT–61G52V PT–61G52CV* *PT–61G52LV PT–61G52VV*
M032	TKK2A0207	BRKT., RETAINER *PT–51G50U PT–51G50CU* *PT–51G50LU PT–51G50PU* *PT–51G50TU PT–51G50VU* *PT–51G52V PT–51G52CV* *PT–51G52LV PT–51G52PV* *PT–51G52TV PT–51G52VV* *PT–51G52XV*
M033	TKR2A33341	BASE, CABT. FRONT *PT–51G50U PT–51G50CU* *PT–51G50LU PT–51G50PU* *PT–51G50TU PT–51G50VU*
M034	TKU2AA00101	COVER, CABT. BACK (TOP) *PT–61G52V PT–61G52CV* *PT–61G52LV PT–61G52VV*
M035	TKU2A10172	COVER, CABT. BACK *PT–51G50U PT–51G50CU* *PT–51G50LU PT–51G50PU* *PT–51G50TU PT–51G50VU* *PT–51G52V PT–51G52CV* *PT–51G52LV PT–51G52PV* *PT–51G52TV PT–51G52VV* *PT–51G52XV*
M036	TKU2A10183–1	COVER, CABT. BACK (CTR)
M037	TLHX003	VM COIL
M038	TMK2AE00101	SHIELD, IR *PT–51G50U PT–51G50LU* *PT–51G50PU PT–51G50TU* *PT–51G50VU PT–51G52V* *PT–51G52LV PT–51G52PV* *PT–51G52TV PT–51G52VV* *PT–51G52XV PT–61G52V* *PT–61G52CV PT–61G52LV* *PT–61G52VV*
M039	TMK2AX00101	VELCRO DOT *PT–51G50U PT–51G50LU* *PT–51G50PU PT–51G50TU* *PT–51G50VU PT–51G52V* *PT–51G52CV PT–51G52LV* *PT–51G52PV PT–51G52TV* *PT–51G52VV PT–51G52XV* *PT–61G52V PT–61G52CV* *PT–61G52LV PT–61G52VV*
M040	TMMX004	SLEEVE
M041	TMM14413	CATCH *PT–51G50U PT–51G50LU* *PT–51G50PU PT–51G50TU* *PT–51G50VU PT–51G52V* *PT–51G52LV PT–51G52PV* *PT–51G52TV PT–51G52VV* *PT–51G52XV PT–61G52V*
M042	TMM14414	STRIKE *PT–51G50U PT–51G50LU* *PT–51G50PU PT–51G50TU* *PT–51G50VU PT–51G52V* *PT–51G52LV PT–51G52PV* *PT–51G52TV PT–51G52VV* *PT–51G52XV PT–61G52V*
M043	TMM14415	STRIKE BASE *PT–51G50U PT–51G50LU* *PT–51G50PU PT–51G50TU* *PT–51G50VU PT–51G52V* *PT–51G52LV PT–51G52PV* *PT–51G52TV PT–51G52VV* *PT–51G52XV PT–61G52V*
M044	TMM2A40103	GROMMET
M045	**TNX2A1001**	**FOCUS BLOCK**
M046	TQB2AA0038–1	MANUAL, OWNERS *PT–51G50U PT–51G50LU* *PT–51G50PU PT–51G50VU*
M047	TQB2AA0088	MANUAL, OWNERS (CHINESE) *PT–51G50TU*
M048	TQB2AA0187	MANUAL, OWNERS *PT–51G52V PT–61G52V*
M049	TQB2AA0189	MANUAL, OWNERS (SPANISH) *PT–51G52LV PT–51G52PV* *PT–51G52VV PT–51G52XV* *PT–61G52LV PT–61G52VV*
M050	TQB2AA0190	MANUAL, OWNERS (CHINESE) *PT–51G52TV*
M051	TQB2AA0193	MANUAL, OWNERS (BI–LING) *PT–51G50CU PT–51G52CV* *PT–61G52CV*
M052	**TSXA029**	**AC LINE CORD**
M053	EASG12P519B2	SPEAKER
M054	TXFKP01AAZ	ASSY, SPEAKER GRILLE *PT–51G50U PT–51G50LU* *PT–51G50PU PT–51G50TU* *PT–51G50VU*

REPLACEMENT PARTS LIST

(Models: PT–51G50U/CU/LU/PU/TU/VU, PT–51G52V/CV/LV/PV/TV/VV/XV & PT–61G52V/CV/LV/VV)

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REF. NO.	PART NO.	DESCRIPTION
M055	TXFKP01CAZM	ASSY, SPEAKER GRILLE *PT–51G52V PT–51G52LV* *PT–51G52PV PT–51G52TV* *PT–51G52VV PT–51G52XV* *PT–51G52CV*
M056	TXFKP017WFM	ASSY, SPEAKER FRAME *PT–61G52V PT–61G52CV* *PT–61G52LV PT–61G52VV*
M057	TXFEA0496SER	ASSY, SPEAKER GRILLE *PT–51G50U PT–51G50CU* *PT–51G50LU PT–51G50PU* *PT–51G50TU PT–51G50VU*
M058	TKP2A11101	DOOR, FRONT A/V *PT–51G50U PT–51G50CU* *PT–51G50LU PT–51G50PU* *PT–51G50TU PT–51G50VU*
M059	TXF3A01AAZ	ASSY, DAG GND
JK1001	TJB2AA00101	TERMINAL, A/V (FRONT) *PT–51G50U PT–51G50CU* *PT–51G50LU PT–51G50PU* *PT–51G50TU PT–51G50VU* *PT–61G52V PT–61G52CV* *PT–61G52LV PT–61G52VV*
JK3101	TJB15657–1	TERMINAL, A/V
JK3102	TJB17689	TERMINAL, A/V
M060	**TXFCRT61SER**	**CRT LENS ASSY (B)**
M061	**TXFCRT62SER**	**CRT LENS ASSY (G)**
M062	**TXFCRT63SER**	**CRT LENS ASSY (R)**
M063	08C11006	ADHESIVE, SILICON

DESCRIPTION OF ABBREVIATIONS GUIDE

RESISTOR

TYPE		TOLERANCE	
C	Carbon	F	+/– 1%
F	Fuse	J	+/– 5%
M	Metal Oxide	K	+/– 10%
S	Solid	M	+/– 20%
W	Wire Wound	G	+/– 2%

RES, C 270–J–1/4

CAPACITOR

TYPE		TOLERANCE	
C	Ceramic	C	+/– 0.25pF
E	Electrolytic	D	+/– 0.5pF
P	Polyester	F	+/– 1pF
S	Styrol	J	+/– 5%
T	Tantalum	K	+/– 10%
		L	+/– 15%
		M	+/– 20%
		P	+100% –0%
		Z	+80% –20%

CAP, P .068UF–K–50V